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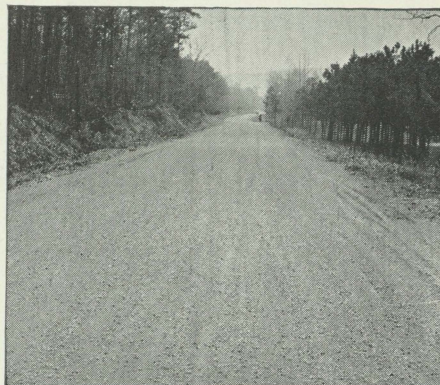
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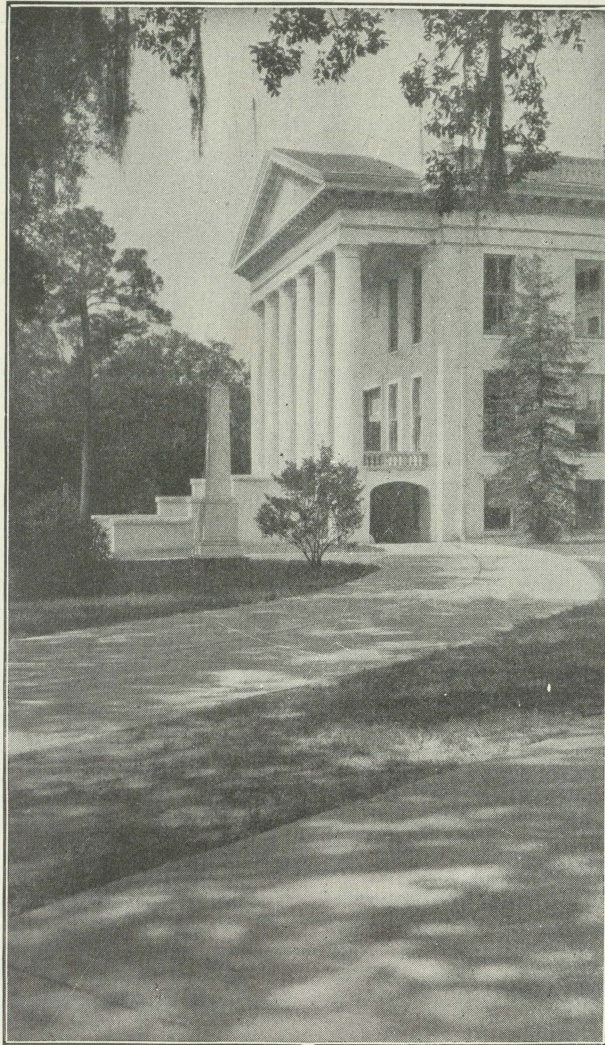
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FLORIDA

Vol. VII
No. 8



HIGHWAYS

AUGUST
1930

Transactions at Meeting of State Road Department Held at Jacksonville, July 23, 1930

PURSUANT to adjournment from July 18, 1930, the State Road Department met at the Carling Hotel, Jacksonville, on July 23, 1930, with the following members present: Robert W. Bentley, Chairman, William A. Shands, Ernest R. Graham and George B. Hills. B. M. Duncan, State Highway Engineer, B. A. Meginniss, Attorney, Karl Roesch, Secretary, and H. J. Morrison, Highway Engineer for the U. S. Bureau of Public Roads, were also in attendance.

Project 70—Peace River Bridge—Road 5

Mr. George P. Morrill of Miami, representing Raymond Concrete Pile Company, submitted to the Department a letter from his company in the form of a proposal to adjust the differences between the Department and Raymond Concrete Pile Company, in the matter of concrete piles in construction of the bridge across Peace River, Project 70, a copy of

which letter appears in the resolution next below. After discussing the matter, the following resolution, offered by Mr. Graham and seconded by Mr. Shands, was unanimously adopted:

WHEREAS, Raymond Concrete Pile Company has submitted to this Department a proposal for the adjustment of the differences which have arisen between said company and this Department in the matter of the construction of the bridge across Peace River, Road 5, Project 70, which said proposal is in the words and figures following, to-wit:

RAYMOND CONCRETE PILE COMPANY
140 Cedar Street
New York

July 19, 1930.

STATE ROAD DEPARTMENT OF FLORIDA,
Tallahassee, Florida.

Dear Sirs:

We have communicated to our New York office

the views which you expressed in our conferences regarding a basis of determining the controversy relative to our work at the Punta Gorda Bridge, and we are authorized by them to propose that we continue casting, curing, water proofing and driving piles, on the following terms:

1. We accept the basis of inspection proposed by you for both our piles and those which may be cast by you. This basis of inspection is as follows: You will accept without question piles that do not have visible cracks before being put in place. We shall have the right to drive any piles that do show visible cracks, whether rejected or not, but with the understanding that you may require any of such piles to be pulled immediately after driving. Any such pile which, after being so pulled, shows a crack extending on all four sides and which dusts under the hammer, shall be rejected. Otherwise, it shall be forthwith permanently incorporated in the work, and in that case you will pay us the cost of pulling and redriving such pile, as outlined in Section 5.8 of the specifications of our contract.

2. If the percentage of the piles cast by us which shall be rejected by you upon the basis of inspection set forth in paragraph 1 shall not exceed seven and one-half per cent, the cost of such rejected piles shall be assumed and borne by us. But if such percentage of rejections shall exceed seven and one-half per cent of the piles cast by us, then you shall pay us for all piles rejected in excess of seven and one-half per cent, such payment to be made upon the following basis: You shall pay us Three (\$3.00) Dollars per cubic yard for mixing and placing concrete, plus the cost of all materials (including reinforcing) in the piles, plus the cost of handling the piles to and from the leads, of driving and pulling them and of transporting them to a point of disposal to be promptly designated by you. Piles so rejected and paid for, or to be paid for, by you shall be the property of the State of Florida. We assume responsibility for any piles broken, cracked or otherwise damaged, through careless handling on our part.

3. You are to have the right, at your expense, to make such investigations and tests as you may deem necessary to ascertain whether or not the forms in the casting yard settle under a load double that of the piles to be cast thereon; and we shall have the right to have a representative present at such investigations and tests and check the results thereof. Should such investigations and tests show that any of the forms settle under such load, we shall strengthen the same, at our expense, so as to prevent further settlement.

4. We shall cover the storage yard with 2-inch loose planking, resting on the present sand surface.

5. If in the course of the work we consider the inspection of the piles, or of any other work, to be improper or unreasonable, you will make personal investigation of our complaints.

6. You will immediately request the United States Bureau of Public Roads at Washington, D. C. to make a full investigation of our work at Punta Gorda and to make recommendations as to the suitability and methods of manufacture of the piles. Copies of the report and recommendations of the Bureau (unless confidential) shall be furnished to us. At the request of either party we shall both consider whether any changes should be made in the foregoing program in the light of the recom-

mendations made by the Bureau; but neither party shall have the right to require any such change to be made unless the other party consents.

7. The notice of default served upon us by the State Highway Engineer shall be withdrawn and our June estimate shall be paid to us at once.

8. We are to procure the consent of our Surety to this arrangement.

Very truly yours,

RAYMOND CONCRETE PILE COMPANY.

J. W. Taussig,
Vice-President.

And WHEREAS, this Department is willing to accept the said proposal, now, therefore,

BE IT RESOLVED, that the Department do accept and approve the proposal which is set out in the foregoing letter; and

BE IT FURTHER RESOLVED, that the Chairman be and he is hereby authorized to advise Raymond Concrete Pile Company of the acceptance by this Department of this proposal.

Mr. Morrill also submitted to the Department another letter from his company, which letter is interpretive of the foregoing agreement or understanding, and which appears in full in the resolution next below.

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

WHEREAS, the Raymond Concrete Pile Company has submitted to this Department a letter which is an interpretation of the understanding or agreement this day entered into between the Department and said company, which said letter is in the words and figures following, to-wit:

RAYMOND CONCRETE PILE COMPANY

140 Cedar Street
New York

STATE ROAD DEPARTMENT OF FLORIDA,
Tallahassee, Fla.

Dear Sirs:

We attach hereto the letter of July 19th which our Mr. Butler brought back from Florida and which we have signed without change.

This arrangement has been consented to by our surety the Metropolitan Casualty Insurance Company of New York.

We note that the letter makes no express provision for extending our time for the completion of the work on account of the delay this controversy has caused. We are signing the letter upon the understanding that we shall receive a reasonable extension of time on that account.

We also understand that the provisions of paragraphs 3 and 4 were inserted at the suggestion of your representative, at a conference on July 19th, to conclude the controversy regarding the sufficiency of our casting yard and storage yard.

We accept these two (2) clauses with the understanding that if the tests shall show a settlement in any form or forms your engineers will, if we request, advise us what measures should be taken to strengthen such form or forms to their satisfaction. The purpose of this is to prevent any further delay in case of possible settlement.

It is also understood that Mr. Duncan will give us a letter in the form agreed upon on July 19th approving our equipment.



Scene East of Road 4 in Rockledge.

We, of course, assume that you will immediately make the investigations and tests contemplated in paragraph 3 as we cannot proceed with the casting of piles until this question is settled.

We note the basis of computing costs specified in paragraph 1 of the attached letter is as outlined in Section 5.8. This involves either a mutual supplementary agreement or force account as outlined in Section 9.4 of the specifications. Paragraph 2 of the letter stipulates a definite price for the mixing and placing of concrete and we understand that the other costs covered in paragraph 2 of the letter shall be either mutually agreed upon by the engineers in a form of supplementary agreement or executed under paragraph 9.4 of these specifications.

Yours very truly,

RAYMOND CONCRETE PILE COMPANY.

J. W. Taussig,

Vice-President.

And WHEREAS, this Department is in accord with the interpretation set up by said letter, Now, Therefore,

BE IT RESOLVED, that this Department does accept and approve the terms and provisions of the letter last hereinabove set out; and

BE IT FURTHER RESOLVED, that the Chairman be and he is hereby authorized to communicate to said Raymond Concrete Pile Company the approval of this Department.

\$14,000 Dixie County Time Warrants

The Chairman reported to the members that in pursuance of the authority granted to him at the last meeting of the Department, he has sold and

delivered to J. H. Scales of Perry, Florida, at 92, \$14,000.00 of the 6% Dixie County Time Warrants and requested approval by the Department of this action.

On motion of Mr. Shands, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED, that the Department does hereby approve and ratify the action of the Chairman in selling and delivering to J. H. Scales, of Perry, Florida, \$14,000.00 of 6% Dixie County Time Warrants, at and for the price of 92% of par value thereof.

Project 70 and Project 769—Road 5

The Chairman directed the attention of the members to the fact that no provision has been made for the making and installing of bronze tablets to be placed upon the Caloosahatchee River bridge, Project 769, which has been named Thomas A. Edison Bridge, and the Peace River bridge, Project 70, which has been named Barron G. Collier Bridge, and requested authority to purchase the same.

On motion of Mr. Shands, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to purchase suitable tablets to be placed on the bridges across Caloosahatchee and Peace Rivers, to carry out the intent of the resolutions heretofore adopted, under which said bridges were named the Thomas A. Edison Bridge and Barron G. Collier Bridge, respectively.

Road 5—Sarasota County

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the Department do take



Florida Highways

Published Monthly
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PERSONNEL OF DEPARTMENT

ROBERT W. BENTLEY (*Bradenton*), *Chairman*
(*Official Residence, Tallahassee.*)

W. A. SHANDS, <i>Gainesville</i>	} <i>Members.</i>
MALLIE MARTIN, <i>Crestview</i>	
GEORGE B. HILLS, <i>Jacksonville</i>	
ERNEST R. GRAHAM, <i>Pennsuco</i>	

KARL ROESCH, *Tallahassee, Secretary*

PERSONNEL OF EMPLOYEES IN GENERAL CHARGE OF THE WORK OF THE DEPARTMENT

Engineering Division

B. M. Duncan, Tallahassee	State Highway Engineer
L. K. Cannon, Tallahassee	Ass't. State Highway Engineer
W. I. Nolen, Tallahassee	Bridge Engineer
H. C. Weathers, Gainesville	Testing Engineer
F. W. Berry, Jr., Tallahassee	Office Engineer
W. L. Thorpe, Gainesville	Supt. of Equipment
E. K. Fogg, Pensacola	1st Division
Counties—Bay, Calhoun, Escambia, Franklin, Gadsden, Gulf, Holmes, Jackson, Jefferson, Leon, Liberty, Okaloosa, Santa Rosa, Wakulla, Walton, Washington.	
M. P. Philips, Lake City	2nd Division
Counties—Baker, Bradford, Clay, Columbia, Dixie, Duval, Hamilton, Lafayette, Madison, Nassau, St. Johns, Suwannee, Taylor, Union.	
R. L. Bow, West Palm Beach	3rd Division
Counties—Brevard, Broward, Collier, Dade, Glades, Hendry, Indian River, Lee, Martin, Monroe, Okeechobee, Palm Beach, St. Lucie.	
L. B. Thrasher, Ocala	4th Division
Counties—Alachua, Citrus, Flagler, Gilchrist, Herndando, Lake, Levy, Marion, Orange, Putnam, Seminole, Sumter, Volusia.	
R. K. Van Camp, Lakeland	5th Division
Counties—Charlotte, Desoto, Hardee, Highlands, Hillsborough, Manatee, Osceola, Pasco, Pinellas, Polk, Sarasota.	

Auditing Division

S. L. Walters, Tallahassee.....Auditor

B. A. Meginniss, Attorney for the Department,
Editor and Business Manager.

over for maintenance that County Road in Sarasota County between Venice and the Myakka River, pending completion of State Road 5 between said points, such maintenance to become effective August 1, 1930.

Road 67—Glades County

On motion of Mr. Graham, seconded by Mr. Bentley, the following resolution was adopted:

BE IT RESOLVED, that, effective August 1, 1930, this Department do take over for maintenance the Three Mile Canal Bridge near Moore Haven on Road 67 in Glades County.

Road 78—St. Johns and Duval Counties

On motion of Mr. Shands, seconded by Mr. Hills, the following resolution was adopted:

WHEREAS, State Road 78 lies along the beach and ocean and in consequence thereof is subject to an intense glare; and

WHEREAS, that portion of the road on which base has thus far been laid is of white material; and

WHEREAS, it seems desirable that the surface on said road should be constructed of a darker material in order to minimize as much as possible the said glare, Now, therefore,

BE IT RESOLVED, that the Chairman be and he is hereby authorized to advertise for bids for slag and crushed gravel to be used in the surfacing of said road.

Traffic Count or Census

The Chairman presented to the members a letter from Mr. P. St. J. Wilson, Acting Chief of the Bureau of Public Roads, offering to cooperate with this Department by contributing one third of the cost of making a traffic census or count at points on interstate highways entering the state. After discussing the matter, on motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to continue negotiations with the Bureau of Public Roads with a view to co-operation between said Bureau and this Department in the matter of a traffic count or census on interstate highways at points entering Florida.

Project 65—Alafia River Bridge—Road 5

The Chairman presented a letter from the Tampa Chamber of Commerce requesting that the Alafia River bridge on Road 5 be named the W. T. Williams Bridge, in honor of W. T. Williams, Chairman of the Board of County Commissioners of Hillsborough County, who has been most active and energetic in his co-operation with the Department in state road and bridge work.

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the bridge across Alafia River, Project 65, Road 5, be and the same is hereby named and designated The W. T. Williams Bridge, in honor of the present chairman of the Board of County Commissioners of Hillsborough County.

BE IT FURTHER RESOLVED, that the Chairman be and he is hereby authorized to procure and have installed a suitable bronze tablet which shall carry the name of the bridge, together with the usual information.

Road 78

The Chairman presented to the members a letter from Mrs. W. S. Jennings, with which she enclosed a

resolution of the Duval County Highway Beautification Association, relative to the beautification of Atlantic Boulevard. It was the consensus of opinion of the members that this matter should be held in abeyance pending the completion of said Road 78.

Storm Damage Relief Bill

The Chairman presented to the members a letter from Hon. H. J. Drane, member of congress, which reported that the bill for the relief of the State Road Department of Florida on account of damage occasioned by storm had passed the Senate, but failed to pass the House of Representatives and that the same will be again presented when Congress convenes in December.

Project 769—Caloosahatchee River Bridge—Road 5 Connection With Lofton's Island

The State Highway Engineer presented to the members a blue print which shows the manner in which it is proposed to connect Lofton's Island with the Caloosahatchee River bridge, Project 769, Lee County.

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

WHEREAS, there has been this day submitted to the Department a blue print which shows the manner in which it is proposed to connect Lofton's island with the Caloosahatchee River bridge, Project 769, Road 5, Lee County; and

WHEREAS, this Department is willing to permit said connection in accordance with the blue print so presented, Now, Therefore,

BE IT RESOLVED, that this Department does hereby give its consent and approval to the building of a connection between Lofton's Island and Project 769, Caloosahatchee River bridge, provided the same shall be constructed in strict accordance with the blue print this day submitted by the State Highway Engineer, a copy of which is hereto attached and made a part hereof.

BE IT FURTHER RESOLVED, that this approval is subject to the further condition, that said connection shall be authorized by the United States War Department.

Certified Checks To Accompany Bids

On motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that from and after the passage of this resolution each bid which shall be submitted with a proposal for road or bridge construction or for the furnishing of materials or supplies shall be accompanied by a certified check in the sum of five per cent of the amount of such bid.

BE IT FURTHER RESOLVED, that no minimum amount of said check shall hereafter be specified.

Approval of Award of Contracts

On motion of Mr. Shands, seconded by Mr. Graham:

WHEREAS, this Department on June 27, 1930 received bids for the betterment of the project hereinafter mentioned, and for the furnishing of materials and supplies hereinafter listed; and

WHEREAS, the firms and individuals hereinafter named were and are hereby declared to be the lowest responsible bidders therefor, Now, therefore

BE IT RESOLVED, that the action of the Chairman in awarding the contracts hereinafter listed be and the same is hereby approved, which said contracts are as follows, to-wit:

Betterment

Proj.	Road	County	Betterment	Bidder	Price
669-C	27	Dade	Rock Cap	Everglades Const Corp.	\$11,985.00

Materials

Proj.	Road	Materials	Bidder	Price
819	54	Pea Gravel	Roquemore Gravel Co.	\$1,253.16
649	33	Pea Gravel	Roquemore Gravel Co.	1,920.00
649	33	Slag	Woodstock Slag Corp.	5,460.00
649	33	T. C.-2	Barrett Company	2,552.00
649	33	Oil Asphalt	Pan-Am. Petrol. Corp.	2,386.50
652	33	Pea Gravel	Roquemore Gravel Co.	2,360.00
652	33	Slag	Woodstock Slag Corp.	7,800.00
652	33	T. C.-2	American Tar Products Co.	3,248.00
652	33	Oil Asphalt	Pan-Am. Petrol. Corp.	3,108.00
846	19	T. Timber & Piling	Eppinger & Russell Co.	2,528.25
845	19	T. Timber & Piling	Eppinger & Russell Co.	2,871.38
785	47	T. Timber & Piling	Eppinger & Russell Co.	1,017.48
726	19	T. Timber & Piling	Savannah Creos. Co.	3,334.81
733	33	Slag	Birmingham Slag Co.	3,150.00

Mule Feed

R. P. Atwood Co., St. Louis, Mo.	Hay for camps No. 2, 34 and X	\$ 958.00
Lewis Bear Co., Pensacola, Fla.	Oats, Bran, Corn for camps No. 4, 12, 26, 27, 31, 32, 33, 36, 37 and X	3,630.63
	Hay for camps No. 12, 26, 27, 32, 36 and 37	2,097.20
Rivers Sales Co., Tallahassee, Fla.	Oats, Corn, Bran for camps No. 1, 2, 3, 8, 30 and 34	2,629.65

Award of Contracts

On motion of Mr. Bentley, seconded by Mr. Shands, the following resolution was adopted:

WHEREAS, this Department on yesterday received bids for the betterment of a certain project and for the furnishing of certain materials and supplies as hereinafter listed; and

WHEREAS, the firms and individuals hereinafter named were and are hereby declared to be the lowest responsible bidders therefor, Now, Therefore,

BE IT RESOLVED, that contracts be and the same are hereby awarded for the betterment of such project and the furnishing of such materials and supplies, as follows, to-wit:

Betterment

Proj.	Road	County	Betterment	Bidder	Price
898	4-A	Monroe	Oil Asphalt Treatment,	Belcher Oil Co.	\$ 5,438.40

Materials

Proj.	Road	Materials	Bidder	Price
501	6	T. C. Prime	American Tar Prod. Co.	2,000.00
501	6	Oil Asphalt	Standard Oil Co.	1,772.40
501-C	6	T. C. Prime	American Tar Prod. Co.	3,250.00
501-C	6	T. C. Prime	Barrett Company	3,224.00
501-C	6	Oil Asphalt	Pan-Am. Petrol. Co.	5,507.10
685	10	T. C. Prime	Barrett Company	1,300.00
685	10	Oil Asphalt	Standard Oil Co., La.	1,519.20
685	10	Slag	Woodstock Slag Corp.	3,600.00
685	10	Lime Rock	Fla. Lime Rock Sales Corp.	32,175.00
522	3	Untreated Timber	Fernandina Lumber Co.	1,087.22
630	8	Untreated Timber	Eppinger & Russell	1,524.80
868	5	Cement (paper bags)	Florida Portland Cement Co.	1,348.08
868	5	Reinf. Steel	Baker & Holmes	684.95
868	5	Stone	Standard Rock Co.	654.00
868	5	Sand	Baker & Holmes, per ton	1.35
845	19	T. Timber	Georgia Creos. Co.	1,502.72
769	5	T. Timber	Eppinger & Russell	2,687.50
846	19	Timber & Piling	Georgia Creos. Co.	1,324.09

Mule Feed

Rivers Sales Co., Tallahassee,	Oats, Corn, Bran for camp No. 4	469.00
Lewis Bear Co., Pensacola,	Oats, Corn, Bran for camps No. 1, 2, 3, 12, 26, 27, 31, 32, 36 and 37	3,673.62
	Hay for camp No. 37	269.50
R. P. Atwood Co., St. Louis, Mo.	Hay for camps No. 2, 26 and 33	804.10
J. N. Watts, Jr., Jacksonville,	Oats, Corn, Bran for camps No. 8 and 33	832.10

Expense Accounts Approved

On motion of Mr. Bentley, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED that the expense accounts of the members be approved as follows, to-wit:

R. W. Bentley	\$ 32.33
R. W. Bentley	22.71
E. R. Graham	77.67
E. R. Graham	85.48
E. R. Graham	52.20
Geo. B. Hills	128.51
Geo. B. Hills	43.51
W. A. Shands	37.90
W. A. Shands	31.82
W. A. Shands	47.86

Purchase of Tires

The Secretary submitted to the members the form of advertisement which he is about to insert in accordance with the resolution of the Department adopted at Tallahassee last week, which was given informal approval by the members.

Meetings of the Department

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the meetings of this Department shall hereafter be held on the second Wednesday of the month, at a point to be designated by the Department.

BE IT FURTHER RESOLVED, that the next meeting of this Department be held at Panama City, on the 13th of August, 1930.

Discussion of Finances

The members here entered upon a discussion of the finances of the Department, which discussion occupied the remainder of the time until the lunch hour.

Upon motion of Mr. Shands, seconded by Mr. Graham, the Department was adjourned until two o'clock P. M.

AFTERNOON SESSION—2:00 O'CLOCK

Present as at morning session.

Designation of Acting Chairman

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

WHEREAS, the Chairman of this Department has indicated his intention of leaving on July 27th for his annual vacation; and

WHEREAS, it is necessary that an acting chairman be designated during his absence, Now, Therefore,

BE IT RESOLVED, that George B. Hills, member of this Department be and he is hereby designated as acting chairman of the Department during the absence of Mr. Bentley, with power to execute contracts on behalf of the Department and to preside at the meeting of the same, to be held at Panama City August 13th.

Road 28—Surfacing

On motion of Mr. Shands, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to advertise for bids for gravel, slag and rock chats as alternate materials to be used in the surfacing of that portion of State Road 28 between Lake City and the Union County line.

Project 74—Road 2—Orlando

Mr. Shands stated to the members that he is advised that the city of Orlando is now willing to enter into an agreement with the Department that

it will within five years widen to a width of 30 feet that part of State Road 2 in the City of Orlando, if the Department will extend its paving project from Colonial Drive south to Church Street.

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That this Department does renew its proposal to the City of Orlando that it will continue the present paving project on State Road 2 in that city from Colonial Drive to Church Street, provided the City of Orlando will enter into a binding agreement with the Department that it will within five years widen to a width of 30 feet that portion of State Road 2 between the north city limits of Orlando and Church Street in said city.

Roads 3 and 4—Duval County

Mr. Hills again called the attention of the members to the slick condition of that portion of Road 3 south of the Country Club and extending toward Orange Park, and that section of Road 4 near Dinsmore.

Upon motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the State Highway Engineer be, and he is hereby directed to gather all the information necessary to enable this Department to take appropriate action with reference to placing a non-skid surface on that section of Road 3 in Duval County south of the Country Club and extending towards Orange Park, and that section of State Road 4 in said county near Dinsmore.

Certified Checks to Accompany Bids

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, that from and after the passage of this resolution, the Department shall retain and deposit only the certified checks of the two lowest bidders on any one project or in connection with the furnishing of material or supplies.

BE IT FURTHER RESOLVED, that this action shall not otherwise affect the system at present in force relative to the furnishing of certified checks with bids.

Taylor County Bonds

On motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to effect sale of all or any part of the 5% bonds of Taylor County owned by this Department, at a price to yield the purchaser 6% or at such better price as he may be able to secure.

Distribution of Maintenance and Construction Work

Upon motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

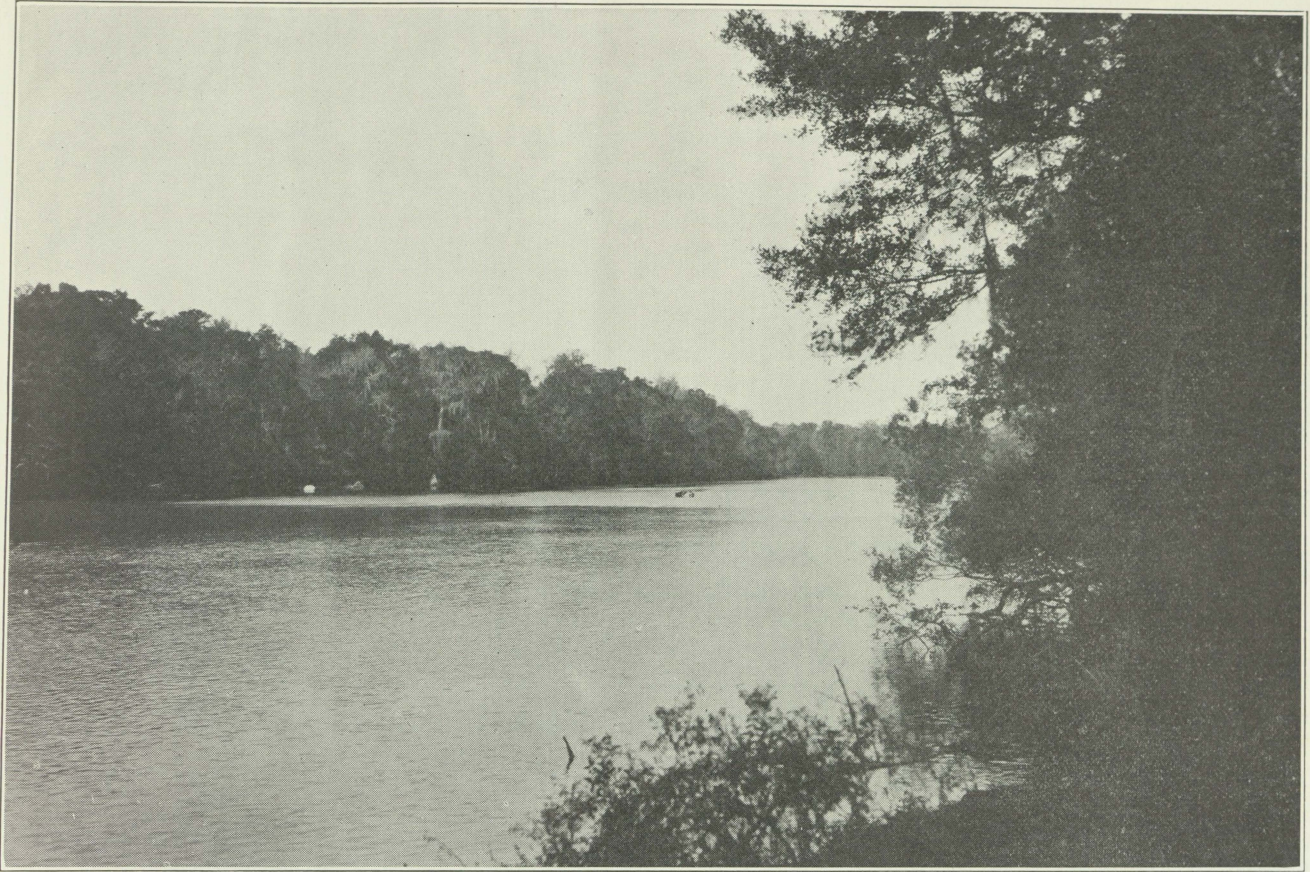
BE IT RESOLVED, that it is the sense of this Department that the maintenance and construction work provided for in the budget shall be carried on as nearly as possible at the same time in each of the Congressional districts of this state.

Distribution of Convict Camps

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that within sixty days from this date, the convict camps under the jurisdiction and direction of this Department shall be as nearly as is practical equally distributed among the four congressional districts of the state.

Upon motion of Mr. Shands, seconded by Mr. Graham, the Department was adjourned.



St. Marks River—Wakulla County.

The Value of State Highways After Dark

Proper Highway Lighting is the Solution of Some of the Most Vexing Highway Problems of Today
By Dudley M. Diggs.

GOOD roads have been one of the big factors in our prosperity. The farmer has been brought nearer to town and the city dweller has commenced to know the farmer. Good roads have also stimulated the travel between cities, both for pleasure and business. Many are the advantages, but you are so well acquainted with them that I will not dwell on them here.

The Highways are built to handle traffic. This traffic may be divided into two main divisions—traffic by day and traffic by night.

I wish to speak of the traffic by night. I wish to tell you how it can be made safer—how it can be made more comfortable—how it can increase the use of the roads at a time when they are little used—how it can relieve congestion at the time relief is most needed—how it can increase the capacity of existing roads. In a word, I wish to talk to you about Highway Lighting.

First and most important are accidents.

Of such vital importance is the appalling economic loss from accidents that practically every State keeps detailed statistics of them. The summation of these shows that the cash cost of motor vehicle accidents in the United States during 1928 was approximately \$900,000,000. One of the facts in connection with this is that a greater and greater proportion of these accidents are continually shifting from city streets to rural highways.

Let us analyze these figures in so far as they are

related to accidents on rural highways. It is estimated that at least 20 per cent of the night accidents are due to insufficient or improper illumination. Assume that at least one half of these occur in the highways after dark. On the basis of collected statistics each accident results in an average economic loss of approximately \$1000. An automobile accident at night would be well above the average so that we would be most conservative in using this figure. We can, therefore, readily calculate the total economic loss. The following table gives this for New York State during 1929.

Number of accidents—93,689.

Persons killed—2,804.

Persons injured—90,885.

Accidents which occurred after dusk—41,115.

Persons killed in accidents after dusk—1,241.

Number of accidents after dark in highways due to inadequate and insufficient illumination (estimated)—10,300.

Total economic loss in State of New York for the year 1929 due to accidents caused by inadequate and improper illumination of highways, \$10,300,000.

The increase in night accidents is going up at a much more rapid rate than the total increase in accidents. Loss of human life can not be estimated in dollars and cents. If we could save only 10 lives a year on our main highways (the place where most of the accidents occur) it would be more than worth while. Individual cases of accidents, or near acci-



Yellow River—Okaloosa County.

dents, due to inadequate or no lighting on the highways could be given almost without number. The percentage of fatal accidents involving pedestrians is so high that I wish to mention some recent tests in regard to this:

These tests prove that pedestrians in dark clothing are not sufficiently illuminated by automobile headlights to allow them to walk safely on a dark surfaced highway. The pedestrian almost invariably fails to realize this; he thinks a bright headlight shining towards him makes him easily visible. Under many conditions he is seen with difficulty and barely in time unless dressed partly in light clothing. His visibility depends largely on the amount of reflected light from his clothing. When dark clothing is worn it absorbs practically all the light directed on him from the headlights. He is, therefore, almost invisible.

That this problem is being tackled practically and successfully can be illustrated by the accomplishment of one Improvement Association in New York State—the Mohawk Valley Towns Association.

The object of the Association is the improvement and beautification of the Mohawk Valley, and it has many projects on its program. Chief among them is the lighting of the main route through this historic and beautiful valley. The stretch lying within the territory of this Association runs all the way from Schenectady to Rome, a distance of 100 miles. Through the fine co-operation of the board of supervisors in the counties interested, over 20 miles of highway lighting are now being installed.

Within five years it is hoped that the entire 100 miles will be lighted so that it can be traveled at night with ease, comfort and safety. Think of

starting from Albany, proceeding all the way to Schenectady, through Schenectady to Amsterdam, through Amsterdam to Utica, Utica to Rome — all the way with a thoroughly up-to-date modern highway lighting system. What a relief and what a pleasure!

When the Mohawk Valley Towns Association decided on this project they secured the co-operation of the automobile clubs, boards of supervisors and city officials. Together they investigated its practicability, the advantages to be derived, and its cost. Most of the installations already in existence were not good enough to produce the results demanded so the co-operation of the manufacturers and power companies was secured. A mile of road was selected—not for the ease with which it could be lighted, but for the difficulties which it presented. The whole stretch was of black non-reflecting surface, two hills, two curves, a railroad on one side and on the other side alternating roads, fields and river. Midway was an intersecting road and a bridge, joining the main road at right angles. At one end was an overhead pass with steep approaches and a right angle bend at each end of the bridge.

All Points Studied

The lighting of this mile of road was studied until the results were proclaimed satisfactory by city, county and State officials, illuminating engineers, power company officials, laymen, keen observing newspaper reporters and others. Many things were considered, but chief among them was safety—safety to the pedestrian as well as the motorist. This commercial mile of highway with its day in and day out traffic, sometimes a dry road surface, sometimes wet, foggy nights, clear nights, moonlight

nights, dark nights, stormy nights, snow, sleet, rain—all were studied.

It would be impossible to tell you all the conditions and angles. To know that one of the officials of a chamber of commerce drove through this lighted zone six times a week for many months will serve to indicate the thoroughness of the observations.

Advantages Reviewed

In addition to the above mile the department of public safety made available a street on which more dangerous tests could be conducted. A police officer was stationed at each end to divert traffic while the tests were in operation. Here the difficulty of revealing dark objects on a dark road surface, the danger to pedestrians, and other studies were made with greater thoroughness than could be done on a highway carrying traffic.

We have seen the practical and scientific way the tests and investigations were carried through. Let us now review the advantages to be derived from a well-lighted highway. There are many, chief among them being:

1. Increase in safety of the highway by preventing accidents, hold-ups, vandalism.
2. Much greater safety in night driving.
3. Additional comfort in night driving.
4. Faster, but safe, night traffic.
5. Enhanced real estate values.
6. Increased road capacity.
7. Electricity rendered more readily available to farmers.

Now just how are these advantages accomplished?

1. By spreading the traffic more equally over the 24 hours.

At present the big majority of traffic is during the daylight hours. This traffic could be relieved during the day by diverting it to the night hours. If the highways were lighted there would be a greater incentive to do more and more trucking by night. Repairs could be made more easily, tires changed, etc. Night speeds could be safely increased, resulting in more cars per mile throughout the 24 hours.

Pleasure and commercial salesmen's automobiles would use the road more at night thus decreasing the day travel by that amount and adding it to the evening travel. Many times the saving of a few hours means the saving of a day—the difference between an immediate unloading and a wait of possibly twelve hours. In the winter when darkness comes on so early, a lighted highway would allow the saving of this time and thus increase the effective running time of commercial vehicles.

2. By having the pole lines for the highway lighting, the power becomes more readily accessible to the farmer—a most important item—as the farmer, if he expects to survive, must depend more and more on electricity to relieve him of the manual labor the same as it has done in factories and cities.

3. By minimizing headlight glare, thus making it feasible to drive with the lower or depressed beams of their headlights.

4. By showing up holes and obstacles in the road.

At night you have probably noticed how headlights cast dark shadows on irregular road surfaces. These shadows obscure the irregularities and make it impossible to gauge their depth and width. If the light were directed from above, the irregularities would be shown in their correct perspective.

5. By illuminating the sides of the road.

6. By illuminating pedestrians.

This is a very important point as a large percentage of the accidents are between pedestrians and autos (in one state over 60 per cent). It is mostly between dusk and dawn that these occur.

Proper highway lighting is the solution of some of the most vexing highway problems of today. It solves the problems, it gives many, many advantages at a cost that is exceedingly small. In the case previously referred to the whole cost, including installation, maintenance, and current being less than three per cent of the initial cost of the road. Surely this is a subject to which the Good Roads Association might well devote itself.—Southern City.

Engineers Seek Smoother Roads

Demand from Motorists Is for More Permanent Evenness in Pavement

THE insistent demands of the motoring public for a greater degree of evenness in road surfaces has led to more care being given to this phase of highway engineering, according to a recent statement by George F. Schlesinger, managing director of the National Paving Brick Manufacturers' Association.

"Formerly," said Mr. Schlesinger, "it was not generally recognized that to attain this refinement in road building and insure its permanency to the advantage and comfort of motorists, it is essential that the building of a smooth road begin at the bottom and be built in, so to speak, from the ground up. This essential, however, is becoming better understood by the public.

"Perhaps the average motorist doesn't know that there is such a thing as a 'bumpometer,' but there is. It is a device used by highway inspectors to determine when the pavement surface meets the requirement of the specifications in regard to smoothness. When the center wheel, which has a vertical movement, varies one-fourth of an inch from a line connecting the end wheels, which are ten feet apart, an electric contact

is made which causes the bell at the handles to ring. Thus two purposes are served—the bump or hole is detected, and the inspector awakened to one of his important responsibilities. It is said also that the sound of the bell is unwelcome music to the contractor.

"Smoothness," Mr. Schlesinger continued, "is most readily obtained, for example, with the vitrified brick type of pavement consisting of small units separated by bituminous material in the joints. Any slight irregularities in the base or foundation can be adjusted in the cushion course as soon as detected. Due to the action of freezing and thawing, the expansion and contraction caused by temperature changes, and the effect of heavy and fast-moving traffic during a long period of years, many pavements do not retain the even character of their original surfaces. When they become rough, the condition is practically impossible or very expensive to correct. Here again the vitrified brick type has a distinct advantage in that the brick can be easily removed and relaid to an even surface with a minimum loss of time and material."



Blue Springs—Jackson County.

Transactions at Meeting of the State Road Department Held At Panama City, August 13, 1930

PURSUANT to due and legal notice, a meeting of the State Road Department was held at Panama City on August 13, 1930, with the following members present: George B. Hills, acting Chairman; William A. Shands, Mallie Martin and Ernest R. Graham. B. M. Duncan, State Highway Engineer; B. A. Meginniss, Attorney; Karl Roesch, Secretary, and H. J. Morrison, Federal Highway Engineer, were also in attendance.

Minutes Approved

Minutes of the meeting held at Jacksonville July 23, 1930, were read and on motion of Mr. Shands, seconded by Mr. Graham, duly approved.

Road 53—Santa Rosa County

A delegation from Santa Rosa county, consisting of C. H. Overman, chairman of the Board of County Commissioners; M. F. Caldwell, attorney for the Board, accompanied by Messrs. Tom A. Johnson and Herbert Caro, bond trustees of Escambia county, and Messrs. Peter Rollo and Marion Turner, of Pensacola, and Senator J. Turner Butler and R. G. Patterson, representing Pensacola Bay Bridge Company, appeared before the Department and stated that Santa Rosa county has now sold its time warrants applicable to the construction of State Road 53 and is prepared to turn over to the Department the sum of \$95,000.00 cash proceeds of the said warrants, upon the execution by the Department and the Commissioners of an agreement covering the construction of State Road 53; and they presented to the Department for execution the contract hereinafter set out, the form of

which was approved by the attorney for the Department.

On motion of Mr. Martin, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That the acting chairman and secretary be and they are hereby authorized and empowered to execute and deliver for and on behalf of this Department an agreement with the Board of County Commissioners of Santa Rosa County, in the words and figures following, to-wit:

“THIS AGREEMENT, made this 13th day of August, 1930, between the State Road Department of the State of Florida, hereinafter referred to as the Department, and the Board of County Commissioners of Santa Rosa County, Florida, hereinafter referred to as the Commissioners, Witnesseth:

“WHEREAS, The County of Santa Rosa has available the sum of \$95,000.00 of the proceeds of the sale of the \$100,000.00 time warrant issue of Special Road & Bridge District No. 8 in said county to be used in the construction of a public road extending from the proposed Santa Rosa county terminus of the bridge now being constructed across Pensacola Bay under authority of resolutions granting a franchise therefor adopted by the County Commissioners of Escambia and Santa Rosa Counties, Florida, on July 12, 1927, extending eastward to an intersection with State Road No. 10; and

“WHEREAS, It is desired by the Commissioners to transfer said funds to the Department to aid in the construction of said road under the provisions of

Chapter 14357, Laws of Florida, 1929, and the General Laws of Florida, and the Department being willing to accept said funds and in consideration thereof undertake and complete the construction of said road, and assume the maintenance thereof;

"NOW, THEREFORE, BE IT AGREED AS FOLLOWS:

"1. The Commissioners agree to turn over, transfer and deliver to said Department the said sum of \$95,000.00 of the proceeds of the sale of the \$100,000.00 time warrant issue of Special Road and Bridge District No. 8, aforesaid; the said funds to be used by the Department only in the construction of the road hereinafter specified.

"2. The Department agrees that if and when said funds in the sum of \$95,000.00 have been transferred, turned over and delivered to the said Department it will construct said road and bridges incidental thereto in a good, substantial, workmanlike manner, providing a standard form of finished surface according to the specifications of the State Road Department.

"3. The Department agrees to use, expend and employ the funds aforesaid solely and only in the construction of said road and that it will supplement the same with sufficient State funds to complete the same, in accordance with said specifications, provided that no funds other than the said \$95,000.00 shall be expended on said road during the year 1930.

"4. It is further understood and agreed that the Department shall commence construction of said road promptly upon the delivery to it of the funds aforesaid.

"5. The Department further agrees that said road will be opened to traffic as soon as possible and that the Department will maintain the same thereafter at its expense in the same workmanlike manner that other State roads are being maintained by the Department, provided that the Department shall not be bound to complete the construction of said road prior to the completion of the aforesaid bridge now being constructed over Pensacola Bay.

"IN WITNESS WHEREOF, The Department has caused this instrument and one other instrument of like tenor and date to be executed in its name and behalf by its Chairman and the Commissioners of Santa Rosa County, Florida, have executed this one instrument and one other instrument of like tenor and date this 13th day of August, 1930."

The agreement referred to was thereupon executed by the acting chairman and secretary of the State Road Department, the same having been duly executed by the chairman and clerk of the Board of County Commissioners of Santa Rosa county.

Glades County—State Road 29

Messrs. J. H. Peeples, J. H. Whidden and T. W. Weeks comprised a delegation from Glades county appearing before the Department, reporting that the right of way for Project 869, Road 29, in said county, has been secured, and requested that bids be advertised for the construction of said road, the same having been authorized by the Legislature at its last session.

On motion of Mr. Shands, seconded by Mr. Martin, the following resolution was adopted:

BE IT RESOLVED, That the chairman be and he is hereby authorized to advertise for bids for the construction of Project 869, Road 29, in Glades county, said bids to be returnable at the September letting of this Department.

September Meeting of the Department

On motion of Mr. Shands, seconded by Mr. Martin,

the following resolution was adopted:

BE IT RESOLVED, That the next meeting of this Department be held at Gainesville on the second Wednesday of September, 1930.

November Meeting of the Department

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That the November meeting of this Department be held at Miami on the second Wednesday of November, 1930.

Road 19—Ochlockonee River Bridge

Messrs. George J. Sullivan and M. Russell, County Commissioners of Leon county, presented to the Department the matter of the construction of a bridge across the Ochlockonee river on State Road 19 between Leon and Liberty counties. They declared that the old bridge has failed and is beyond repair, and that an emergency exists which, unless remedied, will result in a complete stoppage of traffic on said road.

On motion of Mr. Martin, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That this Department does declare that by reason of the condition of the bridge across Ochlockonee river on Road 19 there is an emergency which this Department must meet in order to prevent stoppage of traffic on said road.

BE IT FURTHER RESOLVED, That the engineer be and he is hereby directed to secure the necessary War Department permit for the construction of said bridge.

BE IT FURTHER RESOLVED, That as soon as said permit shall have been obtained, that the chairman be and he is hereby authorized to advertise for bids for the construction of said bridge.

Road 10—Panama City West

Messrs. H. W. Johnson, I. W. Brink, R. L. McKenzie, C. P. Russ, W. B. Gainor and J. Ed Stokes comprised a delegation from Bay county which suggested that the Department continue its program of sand asphalt construction of those sections of State Road 10 west of Panama City, where the sand is at present impassable.

On motion of Mr. Martin, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the chairman be and he is hereby authorized to advertise for the materials necessary for the construction of an additional ten miles of sand asphalt.

BE IT FURTHER RESOLVED, That an emergency is hereby declared to exist, and that the authority hereby granted shall extend to and include authority to advertise for bids for the construction of the necessary bridges in said ten-mile section of said Road 10.

Shelters on East and West Bay Bridges

Mr. H. W. Johnson, chairman of the Board of County Commissioners of Bay County, presented to the members a request that Bay county be granted permission to construct sheds or shelters on East Bay bridge and West Bay bridge for the accommodation of the toll keepers and also for cars stopping to pay tolls.

On motion of Mr. Shands, seconded by Mr. Martin, the following resolution was adopted:

BE IT RESOLVED, That permission be and the same is hereby granted to the County Commissioners of Bay county to install sheds or shelters on East and West Bay bridges for the accommodation of the toll

keepers and cars, the type and construction to be subject to the approval of the engineer of this Department.

Road 80

Mr. Shands, member of the Department, presented a map showing the proposed location of State Road 80 between Keystone and Melrose.

On motion of Mr. Shands, seconded by Mr. Martin, the following resolution was adopted:

BE IT RESOLVED, that the line and location of State Road 80 be and the same is hereby declared to be the line shown on map this day presented to the Department.

BE IT FURTHER RESOLVED, that the Department proceed in the usual manner to secure the right of way along said location.

Road 13—Gainesville to Daysville

Mr. Shands, member of the Department, presented a plat showing the suggested location of State Road 13 between Gainesville and Daysville, together with a connection between said State Road 13 and State Road 14 at the University of Florida.

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, that this Department does adopt as the location of State Road 13 between Gainesville and Daysville, in Alachua County, that line or route shown upon the plat this day presented to the Department and filed in the office of said Department.

BE IT FURTHER RESOLVED, that the engineer be and he is hereby authorized to proceed to the construction of said section of State Road 13, together with the connection between said State Road 13 and State Road 14 as shown on said plat.

Roads 30 and 140

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to advertise for rock necessary for the Department's program on State Road 30 in Indian River County, as outlined by resolution at the July meeting of the Department.

BE IT FURTHER RESOLVED, that the Chairman be and he is hereby authorized to advertise for bids for the rock necessary in the construction of that section of State Road 140 from Lake Worth two miles south.

Road 4-A—Dade and Monroe Counties

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that this Department do take over for maintenance the bridges on State Road 4-A in Dade and Monroe Counties, such maintenance to become effective immediately.

Project 608—Road 4—Eau Gallie

The Attorney for the Department explained to the members that the only part of the right of way remaining in Eau Gallie is owned by one A. R. Hodgson, which right of way he believes can be secured for the sum of \$2500.00.

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the Department does hereby authorize the County Attorney of Brevard County to offer to A. R. Hodgson the sum of not exceeding \$3,000.00 for the purchase of right of way through his land on Project 608, Road 4, Brevard County.

Road 13—Levy County

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, that when the convict crew now employed on State Road 14 in Levy County is ready to move, that the Chairman be and he is hereby authorized to advertise for the rock necessary in the construction of Road 13 in Levy County and that said crew be placed thereon for the surfacing of said road.

Road 5-A—Lafayette County

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to advertise for rock for the surfacing of that section of Road 5-A between Mayo and the Taylor County line, said bids to be returnable at the October letting, and the work of surfacing said road to be carried on either with convicts or with contract, as the Chairman and Engineer may decide.

Polk County—Road 17

Messrs. Reid Robson and T. W. Bryant of Polk County urged the Department to let a contract in September for the paving of State Road 17 between Lakeland and the end of the present paving contract. They also asked that in advertising for bids for the construction of this project, that the Department ask for alternate bids on its uniform width and for an extra width from Main Street east approximately one mile, the contract for such extra width to be awarded in the event that Lakeland or Polk County shall make proper arrangements to take care of the extra expense. They also asked that in constructing this section of Road 17 that the Department adopt cold asphalt mix construction.

Polk County—Road 2

The same delegation requested that the Department let a contract for the construction of Road 2 between Bartow and Bowling Green at the earliest possible moment. They were assured that this contract will in all probability be let either in November or December of this year.

Madison County—Road 35

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

WHEREAS, Madison County is now ready to turn over to the State Road Department \$87,000.00 of County Bonds as a contribution to the paving of State Road 35 between Greenville and the Taylor County line; and

WHEREAS, there has been prepared and executed by the county a form of agreement to be entered into between the Department and said Madison County covering the transfer and delivery of the said bonds, Now, Therefore,

BE IT RESOLVED, that the Chairman of this Department be and he is hereby authorized to execute and deliver the said agreement, which is in the words and figures following, to-wit:

"THIS AGREEMENT, made this 29th day of July, A. D. 1930, between the State Road Department of the State of Florida, hereinafter referred to as the Department, and the Board of Commissioners of Madison County, Florida, hereinafter referred to as the Commissioners, WITNESSETH: That

"WHEREAS, The bonds of said county in the amount of \$101,000.00 have been duly authorized to be issued for the purpose of constructing a paved



Project 597—Road 4—Near Oak Hill, Volusia County.

macadamized or other hard surfaced highway in said County running from a point in Greenville, Florida, on the highway running from the bridge across the Suwannee River near Ellaville, Florida, to the bridge across the Aucilla River on the Greenville and Monticello Public Road, by way of Ebb, Florida, to and connecting with the hard-surfaced highway on the northern edge of Taylor County, Florida, following as near as practicable the now established highway in Taylor County, Florida, via Ebb, Florida, with such changes as may hereafter be designated by the State Road Department of the State of Florida; and

“WHEREAS, it is desired by the Commissioners to transfer said bonds to the Department to aid in the construction of said road under the provisions of Chapter 8553 of the Laws of Florida of 1921, Section 1662 Comp. Gen. Laws of 1927, and the Department being willing to accept said aid under the conditions specified in said Chapter,

“NOW, THEREFORE, BE IT AGREED as follows:

“1. The Commissioners agree to turn over, transfer and deliver to said Department from its duly authorized Road Bonds heretofore voted in the sum of \$750,000.00, \$87,000.00 of the aforesaid bonds amounting to \$101,000.00, said \$87,000.00 bonds being of the denomination of \$1,000.00 each, numbered from 649 to 735, inclusive, dated July 1st, 1922, payable to bearer July 1st, 1952, bearing interest at the rate of five (5) per cent per annum, payable semi-annually on January 1st and July 1st, principal and interest being payable at the National City Bank of New York City, or at any bank in Madison, Florida, the said proceeds of the sale of said bonds to be used by the Department only in the construction of the road as hereinbefore specified, providing that not exceeding \$7,000 per

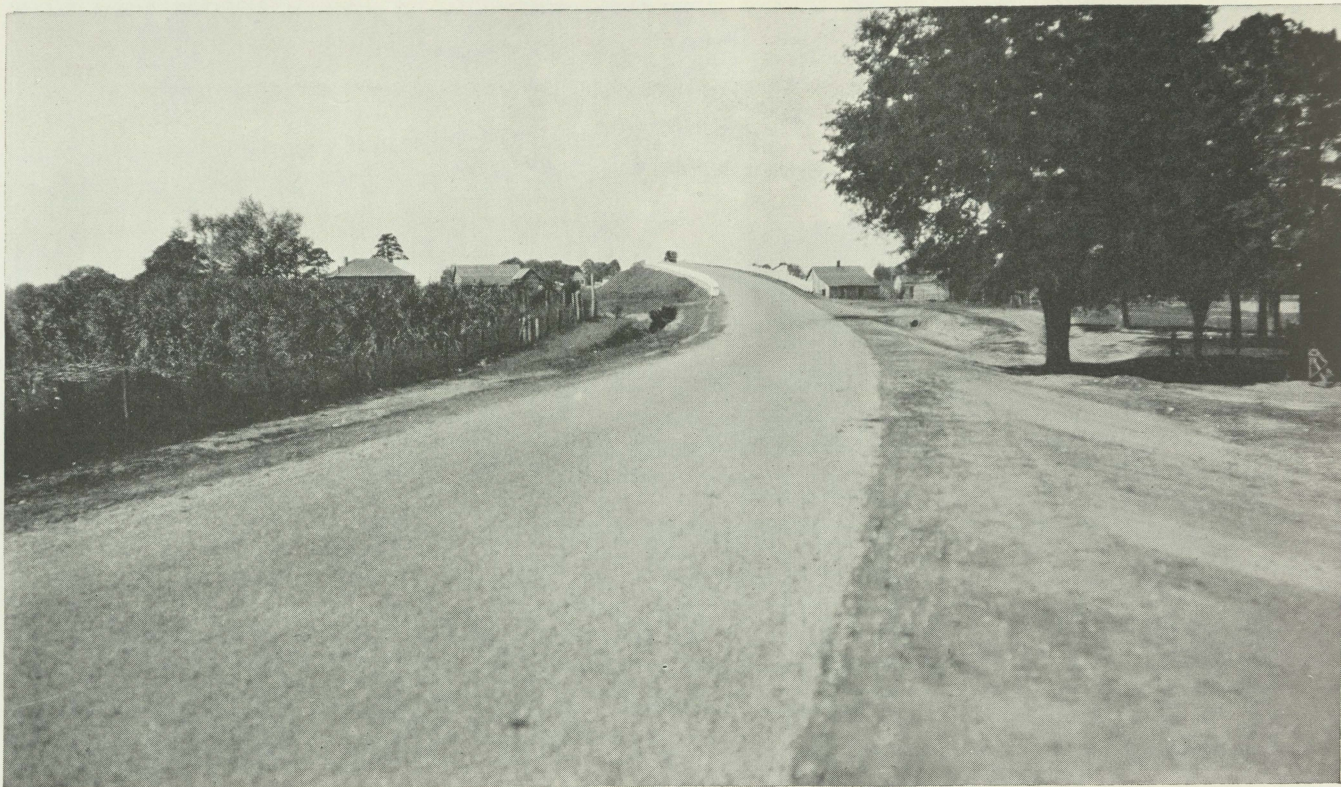
mile of said bonds shall be spent in constructing said highway which has been duly designated by the Department as a part of the system of State Highways or State Aid Roads.

“2. The Department agrees that if and when said bonds amounting to \$87,000.00 have been transferred, turned over and delivered to said Department as aforesaid, it will construct said road and bridges incidental thereto, in a good substantial workmanlike manner, providing an eight inch compact base at least sixteen (16) feet wide, surface treated if necessary, or a standard form of finished pavement according to the specifications of the State Road Department. The actual cost of construction of said road to be not less than the par value of said bonds, with interest thereon from the date of delivery thereof to the Department.

“3. The Department agrees to expend and use and employ as much or more than the par value of said bonds in the construction of said road in said County of Madison, in accordance with said specifications, as may be necessary.

“4. The Department agrees that it will use, expend and employ the proceeds of said bonds amounting to \$87,000.00 solely and only in the construction of the said road, and that it will supplement the same with sufficient state funds to complete the paving of said road, and that its expenditure on said road of the proceeds of said bonds and state funds will equal or exceed the par or face value of said bonds, so transferred and delivered.

“5. It is mutually agreed that if the actual cost of constructing said road in said County shall be less than \$87,000.00, the Department will expend the balance of said sum in hardsurfacing other State or State Aid roads in said county as shall be agreed upon by and between the Department and said Commissioners.



Overhead Crossing at Campbellton—Road 6.

"6. It is further agreed that the Department, from the proceeds of the sale of said bonds to be turned over to it, will pay all incidental expenses necessarily incurred in making sale thereof, but the Department shall not be required to pay any part of the expenses of printing and engraving said bonds, nor of procuring the opinion of a bond attorney as to the validity of same, it being understood and agreed that Madison County will furnish, at its own expense, the opinion of a bond attorney and will bear the expense of printing and engraving said bonds.

"IN WITNESS WHEREOF, the Department has caused this instrument and one other instrument of like tenor and date to be executed in its name and behalf by its Chairman, and the Commissioners of Madison County, Florida, have executed this one instrument and one other instrument of like tenor and date, this 29th day of July, A. D. 1930.

"STATE ROAD DEPARTMENT OF FLORIDA.

"Chairman.

"BOARD OF COMMISSIONERS OF MADISON COUNTY, FLORIDA.

"By J. J. Sale,
"Chairman."

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to advertise for bids for the sale of \$87,000.00 of Madison County bonds which will be turned over to the Department by said Madison County, the proceeds thereof to be used in the paving of State Road 35 between Greenville and the Taylor County line.

Road 4—Crane Creek Bridge at Melbourne

The State Highway Engineer explained to the members the situation with reference to the construction of Crane Creek Bridge on Road 4 in Melbourne,

and outlined the plans which the City of Melbourne made with reference thereto some years ago.

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that this Department do proceed to the construction of the fill approaches on Crane Creek bridge in connection with its bridge construction and independent of any operations or plans of the City of Melbourne.

State Road 48—Bridge Over New River

Hon. W. V. Knott, State Treasurer, and Hon. Nathan Mayo, Commissioner of Agriculture, representing the Board of Commissioners of State Institutions, appeared before the Department to supplement the request contained in the Board's letter to the Department of August 6, in which the Board of Commissioners of State Institutions proposed to the Department that the Road Department furnish working plans and specifications for the construction of the bridge across New River on Road 48 and determine a fair and reasonable contract price for the construction of such bridge pursuant to such plans and specifications, and that the Board of Commissioners of State Institutions would then be willing to have the State Prison Farm forces do the construction work under the supervision of the State Highway Engineer, at a cost to the State Road Department at a price of 5% less than such reasonable and fair contract price.

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to enter into a contract with the Board of Commissioners of State Institutions for the construction of a concrete bridge on Road 48 across New River, on the basis outlined in the Board's proposal addressed to the Chairman of this Department under date of August 6, 1930.

Roads at Industrial School at Marianna and State Hospital at Chattahoochee

On motion of Mr. Martin, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, that the engineer be and he is hereby directed, when the right of way has been made available, to proceed to the construction of the road between Marianna and the Industrial School and the road between River Junction and the State Hospital at Chattahoochee, in accordance with the instructions of the last Legislature.

BE IT FURTHER RESOLVED, that said work shall be done either with convict labor or on contract as the engineer may determine to be most advisable.

Road 41—Okaloosa County

On motion of Mr. Martin, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, that the sum of \$20,000.00 allocated in the present year's budget to State Road 54 be diverted therefrom and applied to the surface treating of Road 41 as far as Baker.

Road 78

On motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to advertise for bids for the rock necessary to complete Road 78 from the end of the present pavement to a physical connection at St. Augustine.

Road 3—Jacksonville to End of Project 659 and

Road 4—Dinsmore South 5.95 Miles

The State Highway Engineer in pursuance of resolution adopted at the last meeting of the Department, presented his estimate of the amounts necessary to widen and surface that section of Road 3 from the south city limits of Jacksonville to the end of Project 659, and that section of Road 4 in Duval County from Dinsmore south 5.95 miles.

On motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized to advertise for bids for the widening and surfacing with Kyrock, Macasphalt or other cold mix, and in accordance with the plans and estimates this day presented by the State Highway Engineer, that section of State Road 3 between Jacksonville and the end of Project 659 and that section of State Road 4 from Dinsmore south 5.95 miles.

BE IT FURTHER RESOLVED, that bids for same shall be returnable at the October meeting of this Department, unless it is found that funds are not available therefor.

Project 70—Peace River Bridge

On motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, that the Chairman be and he is hereby authorized and directed to communicate to the Chief of the Bureau of Public Roads at Washington a request that said Bureau send to Florida, at its early convenience, representatives to investigate all phases of the engineering conduct of the work on the Peace River Bridge, Project 70, Road 5, and give to this Department a report of their findings in connection therewith.

Franklin County—Road 10

Dr. A. S. Ham, Chairman of the Board of County Commissioners of Franklin County, and Mr. John

H. Cook, President of the Apalachicola Chamber of Commerce, requested the Department to replace with state construction that county-built section of State Road 10 from Apalachicola six miles west. This delegation was assured that the Department will give serious consideration to including a provision for carrying out this request in its 1931 budget.

Award of Contracts

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

WHEREAS, this Department pursuant to due advertisement, on August 11, 1930 received bids for the construction of a certain project and for the purchase of certain material and supplies, as hereinafter listed, and

WHEREAS, the firms and individuals hereinafter listed were and are declared to be the lowest responsible bidders therefor, now, therefore,

BE IT RESOLVED, that contracts be and the same are hereby awarded for the construction of such project and for the purchase of such material and supplies as follows, to-wit:

CONSTRUCTION

Proj. 745, Road 19, Taylor County, Rock Base,
Fred D. Beasley, Inc.\$173,434.44

Materials

Proj.	Road	Material	Bidder	Price
501-C	6	Round Gravel	Florida Gravel Co.	\$ 8,936.35
501	6	Round Gravel	Florida Gravel Co.	2,115.00
713	28	Crushed Stone	Florida Crushed Stone Company	9,233.20
713	28	TC Prime	The Barrett Company	2,950.38
713	28	Oil Asphalt	The Texas Co.	3,369.24
519	5	Lime Rock	Lime Rock Sales Corp.	14,792.00
519	5	Concrete Pipe	Shearman Conc. Pipe Co.	310.20
876-A	78	Slag	Woodstock Slag Corp.	7,983.20
876-A	78	Oil Asphalt	The Texas Co.	2,441.14

Convict Supplies

500 pair Shoes—Red Wing Shoe Company\$1,400.00
500 pair Pants—Happ Bros. Co. 572.92

Automobile Tires

BE IT RESOLVED, that contract for furnishing the Department's requirements of automobile tires and tubes for six months beginning September 1, 1930 be awarded to Goodyear Tire & Rubber Company, at the prices and under the conditions as shown by the Department's advertisement and said company's proposal and specifications on file in the office of this Department.

Project 876-A

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, that all bids for TC Prime on Project 876-A be and the same are hereby rejected.

BE IT FURTHER RESOLVED, that the Chairman be and he is hereby authorized to buy said TC Prime for said project in carload lots.

Road 4—Broward County

There was presented to the members a letter addressed to the chairman of this Department with reference to the right of way situation in Broward county. After a discussion of the matter it was informally agreed that action in the matter would be deferred until the next meeting of the Department, and that meanwhile Mr. Graham would take up with the Board of County Commissioners in person the matters referred to in the letter and resolution of the Board of County Commissioners.

Road 2—Lake County

On motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:



Underpass on Road 14 at Palatka.

BE IT RESOLVED, That the chairman be and he is hereby authorized to advertise for bids for the grading of Project 53-D, Road 2, Lake county, between Tavares and Mount Dora, such bids to be returnable to the October meeting, if federal authority for construction shall be received in time.

BE IT FURTHER RESOLVED, That the chairman be and he is hereby also authorized to advertise for bids for the grading of that section of State Road 2 between Eustis and Mount Dora, Project 695.

Sale of Bonds

The attorney for the Department presented to the members letters from several banks in the state placing bids for \$5,000 fourth issue Liberty Loan bonds and \$5,000 Joint Stock Land Bank of Atlanta bonds, which have become the property of the Department because of the failure of certain banks in which the Department had funds secured by said bonds. Said bids are as follows:

On \$5,000 4th Liberty Loan Bonds

Florida National Bank, Jacksonville, 102 1-2 and accrued interest.

Lewis State Bank, Tallahassee, 102 and accrued interest.

Exchange National, Tampa, 102 16-32 and accrued interest.

Capital City Bank, Tallahassee, 102.50 and accrued interest.

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the bid of 102 1-2 and accrued interest offered by Florida National Bank of Jacksonville for \$5,000.00 Fourth Liberty Loan bonds be and the same is hereby accepted.

BE IT FURTHER RESOLVED, That the chairman be and he is hereby authorized to negotiate with said Florida National bank for the sale of the \$5,000 Joint Stock Land Bank of Atlanta bonds.

Pinellas Water Company Permit for Road Crossing

A petition was presented from the Pinellas Water Company making application for a permit to be granted to said company to construct a water main under and across State Road 64 and across State Road 17 at the intersection of Pinellas County Road 31 at Dellwood, in accordance with plat and blue print submitted in connection with said application.

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That there be and there is hereby granted to Pinellas Water Company permission to lay its water main under and across State Road 64 and to construct its water main across State Road 17 at its intersection with Pinellas County Road 31, in Dellwood, in strict accordance with blue prints submitted in connection with said application.

BE IT FURTHER RESOLVED, That permission hereby granted is subject to all the terms and conditions set out and granted in a former permit granted to said company, with the understanding that the bond of \$5,000 already posted covering permit on Road 17 shall extend to and include the authority hereby granted.

Road 4—Broward County

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

WHEREAS, Road No. 4 forms a part of the Federal Seven Percent System of Florida; and

WHEREAS, The State Road Department is desirous of obtaining Federal funds to aid in the construction of that portion of Road No. 4 from Dania to the Dade county line in the county of Broward; now, therefore,

BE IT RESOLVED, That the chairman is hereby authorized to submit plans and specifications to the Bureau of Public Roads and make application for

Federal aid for said project; and the Department does hereby pledge that the necessary funds will be provided by said Department for meeting Federal aid on said proposed Federal aid project; and

BE IT FURTHER RESOLVED, That the State Highway Engineer be and he is hereby directed to commence the construction of said road as soon as all necessary plans are completed.

Road 5—Hillsborough County

WHEREAS, Road No. 5 forms a part of the Federal Seven Percent System of Florida; and

WHEREAS, The State Road Department is desirous of obtaining Federal funds to aid in the construction of that portion of Road No. 5 from the Pasco county line to Six-Mile creek in the county of Hillsborough; now, therefore,

BE IT RESOLVED, That the chairman is hereby authorized to submit plans and specifications to the Bureau of Public Roads and make application for Federal aid for said project; and the Department does hereby pledge that the necessary funds will be provided by said Department for meeting Federal aid on said proposed Federal aid project; and

BE IT FURTHER RESOLVED, That the State Highway Engineer be and he is hereby directed to commence the construction of said road as soon as all necessary plans are completed.

Road 14—Hawthorn

A letter to the chairman from the vice president of the Seaboard Air Line railway was read, in which that official stated that his company was unwilling to sell a lot in Hawthorn for \$50.00, but felt that they should receive \$200.00.

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the chairman be and he is hereby requested to write the officials of the Seaboard Air Line railway that this Department will not pay more than \$50.00 for the lot in question.

Use of Convicts in Grading Federal Aid Projects

The attorney for the Department presented to the members correspondence which has passed between the acting district engineer for the U. S. Bureau of Public Roads and the chairman of this Department with reference to the use of convicts in grading Federal aid projects.

On motion of Mr. Shands, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED, That the chairman and attorney of this Department be and they are hereby requested to ascertain if the Board of Commissioners of State Institutions can place a bid with this Department for the construction of grades on Federal aid projects.

BE IT FURTHER RESOLVED, That the chairman be requested to continue his negotiations with the Bureau of Public Roads with a view to determining some other satisfactory basis for the use of convicts in said work.

On motion of Mr. Shands, seconded by Mr. Graham, the Department was adjourned until 2 o'clock P. M.

AFTERNOON SESSION 2:00 O'CLOCK

Present as at morning session.

Liberty County—Road 19

There was presented to the members a letter from Hon. W. H. Walker, clerk of the Board of County

Commissioners of Liberty County, addressed to the chairman, outlining the difficulties which the Commissioners are encountering in securing right of way for State Road 19 in said county.

On motion of Mr. Martin, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED, That the division engineer be directed to proceed to Liberty county to look into and advise with the Board of County Commissioners on the right of way situation on Road 19 in said county.

Levy County—Road 5—Right of Way

Upon motion of Mr. Shands, seconded by Mr. Martin, the following resolution was unanimously adopted:

WHEREAS, The Department has surveyed and located State Road No. 5 in Levy county, as is shown by plat of said location on file in its office and in the office of the clerk of the circuit court of said Levy county; and

WHEREAS, Said Department has found and determined, and does hereby find and determine that it is necessary, wise and expedient to secure by purchase or condemnation the lands hereinafter described for the purpose of a right of way for said State Road No. 5; now, therefore,

BE IT RESOLVED, That the Board of County Commissioners of Levy County be and they are hereby authorized and requested to secure for the Department, by purchase or condemnation, the following described lands, to-wit:

A strip of land 100 feet in width, the same being 50 feet on either side of the center line of State Road No. 5, and the same being project 868 as the same is now surveyed and located on, upon and through block numbered eighteen (18) in the town of Montbrook, in Levy county, Florida, as surveyed, mapped and platted by civil engineer, and filed and recorded in plat book No. 1, at page 2 of the public records of Levy county, Florida, and more particularly described as follows, to-wit:

Begin at the northwest corner of block 18, in the town of Montbrook, in Levy county, Florida, run south on west line of said block 18 a distance of 21.5 feet; thence south 10 degrees and 9 minutes east, parallel to center line of State Road No. 5, a distance of 465.9 feet; thence east on the south line of block 18 a distance of 101.62 feet; thence north 10 degrees and 9 minutes west, parallel to center line of State Road No. 5, a distance of 487.7 feet; thence west, on the north line of Block 18, a distance of 97.85 feet to a point of beginning, all of the above described land being in lots 2, 3, 4, 5, 6, 7 and 8, of Block 18, in the town of Montbrook, Levy county, Florida, containing 48,729 square feet, or 1.1 acres of land, more or less.

BE IT FURTHER RESOLVED, That said Board of County Commissioners be and they are hereby authorized to use the name of this Department in any condemnation proceeding or proceedings necessary to carry out the purposes of this resolution.

BE IT FURTHER RESOLVED, That in the event that they shall elect to proceed in the name of this Department, that their counsel be and they are hereby authorized to prepare, execute and file all necessary pleadings, affidavits and documents in connection therewith, and to prosecute such action to completion.

Columbia County—Road 82

There was presented to the members a resolution of the Board of County Commissioners of Columbia County with reference to the transfer of \$171,881.82 in cash and bonds, in trust for State Road 82. There was also communicated to the members a request from the Board of County Commissioners of Columbia county for a joint meeting of the Department and said Commissioners as early as possible.

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the chairman be and he is hereby requested to advise the County Commissioners of Columbia county that the Department will be glad to have the members of said Board meet with it at Gainesville on September 10th.

Sale of Crane

The State Highway Engineer presented to the Department a letter from Central Station Equipment Company, offering to purchase a crane which said company is now renting from the Department.

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That the chairman be and he

is hereby authorized to negotiate for the sale of the crane which is at present in the possession of the Central Station Equipment Company.

Expense Accounts Approved

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the expense accounts of the members be and they are hereby approved as follows:

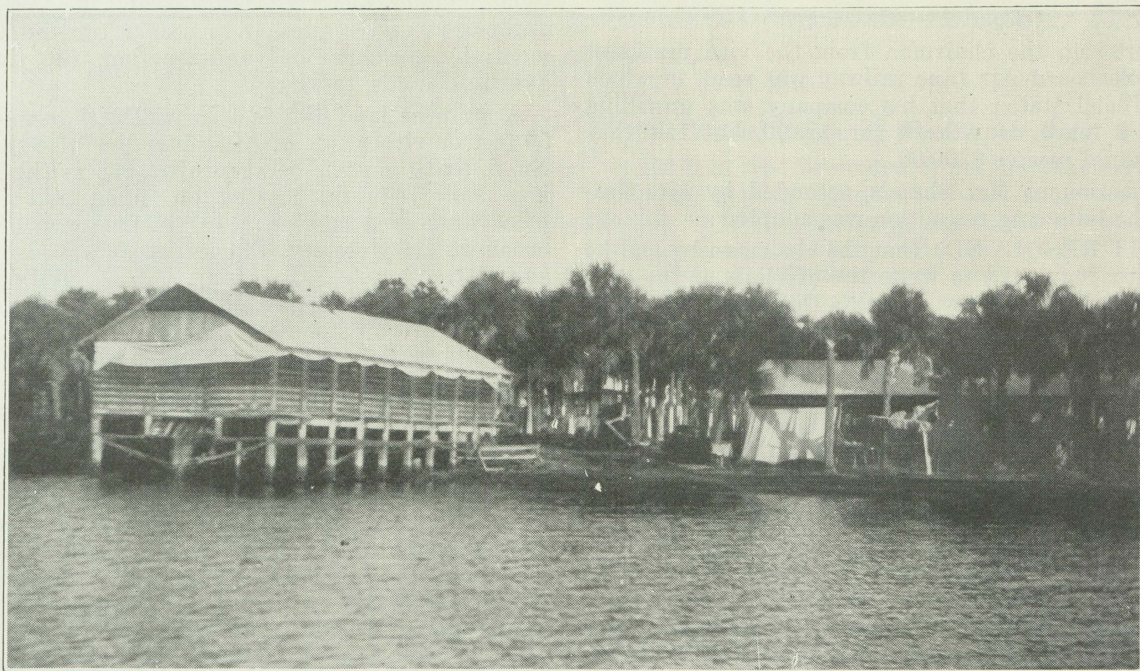
W. A. Shands.....	\$12.56
E. R. Graham.....	51.24

RESOLUTION OF THANKS

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the members of this Department do hereby express to the people of Bay county, Panama City and the Kiwanis Club of Panama City, and to the Dixie Sherman hotel of Panama City their thanks for the many courtesies extended during the holding of this meeting in said Panama City.

On motion of Mr. Shands, seconded by Mr. Graham, the Department was adjourned.



One of the Department's Convict Camp Sites.

Big Gun Curtain Lecture

Mrs. Bindler—"Is there any difference, Thomas, do you know, between a fort and a fortress?"

Mr. Bindler—"I should imagine a fortress, my dear, would be more difficult to silence."—Utica Press.

The Woman of It

"So you asked Geraldine to marry you?"

"Yes, but I didn't have any luck."

"Why didn't you tell her about your rich uncle?"

"I did. Geraldine's my aunt now."—Humorist (London.)

Baffled Pacifist

Judge—"The two men were fighting with chairs. Didn't you try to establish peace?"

Witness—"No, there was not a third chair."—Buen Humor (Madrid.)

Solving the Agricultural Problem

"Has that expert in farm relief been of assistance to you?"

"Some," answered Farmer Corntossel. "He showed me where I can put a good golf course on my land as soon as I can afford to play the game."—Washington Star.



Road 27—Tamiami Trail—Arch at Collier County Line.

Steel Base for Roads Proposed

New Type of Highway Foundation Viewed as Revolutionary Step

PLANS MADE FOR TEST

Greater Safety the Aim at Speed Ranging From Sixty to One Hundred Miles an Hour

STEEL foundations for public roads is the latest development in prospect in highway engineering. The motoring public, long familiar with unsightly cracks in rigid road surfaces, and the rutting and shoving of the softer types, may now have roads that will be at all times smooth; that, according to estimates, will last several times longer than pavements now in use, and over which traffic may move with increased safety at a speed ranging between 60 to 100 miles an hour. In fact, this steel-based road heralds the coming of the real super-highway, according to the view of road builders who have given the new development close study.

The first test road embodying this new steel construction is being built on a section of the Sangamon county (Illinois) highway system. As explained by engineers, the road will have a carefully rolled and prepared sub-grade on which the steel base and curb will be laid. Next will follow a mastic sand cushion upon which will be placed a layer of two and one-half or three-inch brick, with an asphaltic filler poured into the interstices between the brick. The result will be an indestructible base with a smooth riding sur-

face built into the structure with sufficient flexibility to meet all changes in temperature without breaks or cracks on the surface.

Permission to construct this steel section has been granted by Frank T. Sheets, chief engineer of highways in Illinois, and the test road will be built under the supervision of Truman L. Platt, superintendent of highways in Sangamon county.

For this new foundation, a type of steel that would resist the corrosive effects of rust was essential, and the American Rolling Mills of Middletown, Ohio, will manufacture the steel for this first steel highway. The road will be carefully observed in service and detailed records kept which, according to its proponents, will bring out its points of superiority.

Steel is probably the most universally useful and important product of the world today, and it has always been a fond, even though vague dream, that eventually there might be highways of steel. However, there were problems to be solved, such as construction, proper traction for traffic, cost, and life. It is generally conceded that steel would afford a construction which would have many advantages as to

load-bearing strength and ease of laying. But many felt that a steel road could not be built at a price within reason. Also, that it would be difficult to secure proper traction when traffic was placed directly on a steel-wearing surface. Steel engineers have attacked the problem and by means of extensive research and tests, have developed a type of steel base construction which, used in connection with a proper surfacing material, would not only give an exceptionally strong highway but would permit a wearing surface of some flexible type such as asphalt, bituminous filled brick, etc., which would be ideal for the wheels of traffic.

The problem of initial cost of such a super-pavement has also been attacked by steel officials and engineers and by using certain methods of construction developed in their tests, they have been able to get the cost down to a price comparable to other present-day pavements of the higher types.

"The last word in road construction," says George F. Schlesinger, managing director of the National Paving Brick Manufacturers' Association, "has not yet been written. Indeed, it may still be far in the distance but the road with a steel foundation topped with vitrified brick on a sand cushion and held in place by a flexible binding material between the brick, certainly seems to have possibilities. It may be the answer to the motorists' quest for a road that has a smooth, resilient riding surface, and best of all, a road that will make his gasoline tax and license fee investments well worth while."

General Overhaul

A dentist says that he had an absent-minded motorist in his chair the other day. "Will you take gas?" he asked.

"Yeah," replied the patient, "and you'd better look at the oil, too."

There are Others

A patient who complained of digestive troubles was told by a specialist that he was drinking too much and would have to knock it off.

"Well," said the patient, "what am I to tell my wife?"

The doctor thought for a few minutes and then said, "Tell her you are suffering from syncope. That will satisfy her."

The patient did as he was told. "What is syncope?" asked his wife.

"I don't know," said the husband, "but that is what he said."

When her husband had gone out the wife looked up the word in the dictionary and found it meant "Irregular movement from bar to bar."

Pleasures of Hope

Chairman (finishing eulogistic speech)—"Our dear old friend here has lived amongst us for forty years, is living with us now, and he says, hopes to live amongst us for many years to come. Gentlemen, I can only add that we are looking forward to burying him here."—The Outspan (Australia).

Contracts Awarded by State Road Department

JANUARY 1st., 1930, TO AUGUST 25, 1930

Proj.	Road	County	Contractor	Length Miles	Length Feet	Contract + 10%	Type
70	5	Charlotte	Tampa Shipbldg. & Engr. Co.	75		\$ 45,676.40	Bascule
73-B	17	Polk	Cone Bros. Const. Co.	305		43,984.54	Conc. Bridge
757-B	2	Polk	Florida Bridge & Const. Co.	117		15,234.78	Conc. Bridge
758-B	2	Polk	Cone Brothers Const. Co.	436		59,267.06	Conc. Bridge
20	1	Holmes-Washington	Florida Basic Rock Co.	2.0		19,800.00	Rock Base
62-A	24	Osceola	L. B. McLeod Const. Co.	5.22		123,676.65	R. B. S. T.
73-A	17	Polk	Wm. P. McDonald Const. Co.	3.66		88,283.19	Mac Asphalt
63-C	4	Broward	R. G. Lassiter & Co.	13.24		470,941.54	Concrete
74	2	Orange	Manly Const. Co.	14.34		387,032.94	Asp. Concrete
698	19	Leon	H. E. Wolfe Const. Co.	12.45		276,425.45	Concrete
65	5	Hillsborough	C. M. Moore Const. Co.	.30		23,780.90	R. B. S. T.
721-B	3	Putnam	L. M. Gray	.25		18,829.00	R. B. S. T.
835	5	Marion-Citrus	Manly Const. Co.	.15		4,439.71	R. B. S. T.
40-B	4	Broward	L. M. Gray	.31		10,484.43	R. B. S. T.
68-A	4	Broward	S. P. Snyder & Sons	.37		28,972.93	R. B. S. T.
587-B	5-A	Suwannee	Duval Engineering & Contr. Co.	.34		17,736.22	R. B. S. T.
876-A	78	Duval-St. Johns	Standard Dredging Co.	8.00		81,574.76	Shell Base
758	2	Polk	A. E. Campbell	.10		2,095.74	R. B. S. T.
500-B & C							
515	20	Bay-Jackson	Marianna Lime Products Co.	29.43		328,212.85	R. B.
750	14	Gilchrist	L. M. Gray	12.26		109,936.23	R. B.
669-Y	27	Collier	Fred D. Beasley, Inc.	10.55		22,320.49	Surf. Treatm't.
769	5	Lee	Fred D. Beasley, Inc.	1.89		26,988.64	R. B.
870	143	Palm Beach	Central Fla. Const. Co.		135	8,790.26	Timber
766	10	Bay	Fla. Bridge & Const. Co.		555	4,461.47	Timber
688	10	Bay	R. J. Arrington & Son		60	396.16	Timber
767	10	Bay	J. U. Fletcher		45	751.43	Timber
669-C	27	Dade	Everglades Const. Corp.	9.48		13,183.50	Rock Cap
911	68	Bradford	Duval Engr. & Contr. Co.	3.50		24,069.54	Rock Base
714	28	Union	F. W. Long & Co.	9.14		88,172.06	Rock Base
62-A	24	Osceola	L. B. McLeod Const. Co.	5.87		104,950.53	R. B. S. T.
62-D	24	Osceola	L. B. McLeod Const. Co.	12.66		307,070.29	R. B. S. T.
708	11	Jefferson	Duval Engr. & Contr. Co.	7.98		130,331.33	R. B. S. T.
806-A	25	Hendry	E. F. Powers Const. Co.	11.00		199,911.51	R. B. S. T.
57	3	Nassau-Duval	R. C. Huffman Const. Co.	3.40		173,830.52	Embankment
715-B	28	Union-Bradford	Fla. Bridge & Contr. Co.		783	79,872.68	Conc. Bridge
66	5	Sarasota	R. C. Huffman Const. Co.		459	128,288.17	Conc. Bridge
75	27	Collier	Central Station Equip. Co.		561	125,332.26	Conc. Bridge
898	4-A	Monroe	The Belcher Oil Co.	5.00		5,982.24	Surf. Treat'd.
745	19	Taylor	Fred D. Beasley, Inc.	15.95		190,777.88	Rock Base
Totals				198.84	3531	3,791,866.28	

Trust Mother Nature

"My husband is particularly liable to sea-sickness, captain," said the woman.

The skipper nodded. "I've heard of the complaint before, ma'am," he said.

"Could you tell him what to do in case of an attack?" asked the woman.

"Taint necessary, ma'am," replied the skipper. "He'll do it."—Montreal Star.

Human Centipede

A young officer at the front wrote home to his father:

"Dear Father: Kindly send me £50 at once; I lost another leg in a stiff engagement and am in the hospital without means."

The answer was:

"My Dear Son: As this is the fourth leg you have lost (according to your letters), you ought to be accustomed to it by this time. Try and wobble along on any other you may have left."—Montreal Star.

Good Night

BIRTH STONES.

For laundresses, the soapstone;
For architects, the cornerstone;
For cooks, the puddingstone;
For soldiers, the bloodstone;
For politicians, the blarneystone;
For borrowers, the touchstone;
For policemen, the pavingstone;
For stock brokers, the curbstone;
For shoemakers, the cobblestone;
For burglars, the keystone;
For tourists, the Yellowstone;
For beauties, the peachstone;
For editors, the grindstone;
For motorists, the milestone;
For pedestrians, the tombstone.

—The Parade.

Bill Johnson sleeps beneath this lid—

He always claimed he couldn't skid—

The fact remains, he could—and did!

Status of Construction

THROUGH APRIL 30th, 1930

Proj. No.	Contractor	Road No.	County	Total Length Miles	Clearing Miles	Grading Miles	Base Miles	Surface Miles	Type	Per cent Complete
40-B	L. M. Gray	4	Broward	.31	.....	.....	0.00	0.00	R.B.S.T.	0.00
62-A	L. B. McLeod Const. Co.	24	Osceola	6.32	.....	.....	6.00	3.00	R.B.S.T.	65.00
62-C	L. B. McLeod Const. Co.	24	Osceola	12.09	.....	.....	11.50	3.00	R.B.S.T.	85.00
63-A	Morgan-Hill Paving Co.	4	Palm Beach	9.21	.....	.....	.....	6.00	Concrete	45.00
63-C	Robt. G. Lassiter & Co.	4	Broward	13.24	.....	.....	.....	0.00	Concrete	5.00
64-A	H. E. Wolfe Const. Co., Inc.	17	Hillsborough	9.61	.....	.....	.....	9.61	Concrete	95.00
64-C	H. E. Wolfe Const. Co., Inc.	17	Hillsborough	9.61	.....	.....	.....	9.61	Concrete	100.00
65	C. C. Moore Construction Co.	5	Hillsborough	.30	.....	.....	0.00	0.00	R.B.S.T.	35.00
68-A	S. P. Snyder & Sons	4	Broward	.37	.....	.....	0.00	0.00	R.B.S.T.	0.00
73-A	Wm. P. McDonald Const. Co.	17	Polk	3.66	.....	.....	0.00	0.00	Mac. Asp.	0.00
74	Manly Const. Co.	2	Orange	14.34	.....	.....	0.00	0.00	Bit. Mac.	0.00
500-B	Marianna Lime Products Co.	20	Bay	12.65	.....	.....	0.00	0.00	R.B.S.T.	0.00
500-C	Marianna Lime Products Co.	20	Bay	12.19	.....	.....	0.00	0.00	R.B.S.T.	0.00
515	Marianna Lime Products Co.	20	Jackson	4.59	.....	.....	0.00	0.00	R.B.S.T.	0.00
587-B	Duval Engr. & Contr. Co.	5-A	Suwannee	.34	.....	.....	0.00	0.00	R.B.S.T.	0.00
698	H. E. Wolfe Const. Co., Inc.	19	Leon	12.45	.....	.....	.....	0.00	Concrete	0.00
706-A	T. B. Gillespie, Inc.	28	Clay-Putnam	10.83	.....	.....	10.83	0.00	R.B.S.T.	80.00
713	State Convict Forces	28	Columbia	10.00	.....	.....	3.50	0.00	R.B.S.T.	20.00
721-B	L. M. Gray	3	Putnam	.25	.....	.....	0.00	0.00	R.B.S.T.	0.00
750	L. M. Gray	14	Gilchrist	12.26	.....	.....	0.00	0.00	R.B.S.T.	0.00
756	State Convict Forces	19	Marion	11.89	.....	.....	10.76	0.00	R.B.S.T.	75.00
758	A. E. Campbell	2	Polk	.10	.....	.....	0.00	0.00	R.B.S.T.	0.00
766	State Convict Forces	10	Bay	8.74	8.74	8.74	.....	.....	Graded	100.00
787	State Convict Forces	10	Walton	16.29	16.12	12.02	.....	.....	Graded	62.85
788	W. J. Bryson Paving Co.	10	Walton	17.50	16.80	16.80	.....	.....	Graded	96.63
798	State Convict Forces	13	Nassau	15.03	9.48	7.65	.....	.....	Graded	52.00
801	State Convict Forces	48	Bradford-Union	11.78	1.00	1.00	.....	.....	Graded	8.00
820	H. D. Spangler & Co.	96	Jefferson	9.45	8.03	2.74	.....	.....	Graded	40.00
821	H. D. Spangler & Co.	96	Jefferson	5.18	5.18	4.92	.....	.....	Graded	96.00
832	State Convict Forces	10	Santa Rosa	16.01	13.00	11.29	.....	.....	Graded	80.00
833	State Convict Forces	10	Santa Rosa	8.02	7.25	3.25	.....	.....	Graded	26.00
835	Manly Construction Co.	5	Marion-Citrus	.15	.....	.....	.15	0.00	R.B.S.T.	90.00
840	State Convict Forces	115	Walton	10.20	10.20	10.20	.....	.....	Graded	100.00
841	State Convict Forces	115	Walton	6.44	5.00	3.58	.....	.....	Graded	50.00
842	W. J. Bryson Paving Co.	115	Walton	10.15	10.15	10.15	.....	.....	Graded	100.00
845	State Convict Forces	19	Taylor	8.57	8.57	8.20	.....	.....	Graded	96.00
846	State Convict Forces	19	Taylor	11.00	9.00	7.71	.....	.....	Graded	65.00
854	G. W. Byrd	60	Walton	9.81	9.81	9.81	.....	0.00	Sand-Clay	90.00
868-C	State Convict Forces	5	Levy	12.34	2.00	.20	.....	.....	Graded	8.00
870	S. J. Groves & Sons	143	Palm Beach	10.83	2.00	1.30	0.00	0.00	R.B.S.T.	5.00
876	State Convict Forces	78	Duval-St. Johns	28.90	18.00	17.00	.....	.....	Graded	60.00
876-A	Standard Dredging Co.	78	Duval-St. Johns	8.00	.....	.....	0.00	0.00	Shell	0.00
878	State Convict Forces	77	Gilchrist	12.00	4.45	2.00	.....	.....	Graded	15.00
Total complete April 30th, 1930				3,011.00	2,972.90	1,573.41	2,391.29			
Complete month of April				24.97	29.89	8.65	11.15			
Total complete March 31st, 1930				2,986.03	2,943.01	1,564.76	2,380.14			

TOTAL MILEAGE COMPLETE

	Concrete.	Brick	B.C.	S.A.	B.M.	Asph.B.	R.B.S.T.	S.C.S.T.	S.C.	Mac Asph.	Marl	Total
Complete to March 31, 1930	345.25	17.13	39.75	114.75	109.57	23.70	1,315.12	290.54	203.26	0.00	27.58	2,486.65
Complete Month of April	3.58	.....	.....	.....	.....	.....	6.40	.....	1.00	.....	.....	10.98
Complete to April 30, 1930	348.83	17.13	39.73	114.75	109.57	23.70	1,321.52	290.54	204.26	0.00	27.58	2,497.63

Status of Construction

THROUGH MAY 31ST, 1930.

Proj. No.	Contractor	Road No.	County	Total Length Miles	Clearing Miles	Grading Miles	Base Miles	Surface Miles	Type	Per Cent Complete		
40-B	L. M. Gray	4	Broward	.31			0.00	0.00	R.B.S.T.	50.00		
62-A	L. B. McLeod Const. Co.	24	Osceola	6.32			6.32	5.00	R.B.S.T.	80.00		
62-C	L. B. McLeod Const. Co.	24	Osceola	12.09			12.09	3.00	R.B.S.T.	90.00		
63-A	Morgan-Hill Paving Co.	4	Palm Beach	9.21				7.25	Concrete	60.00		
63-C	Robert G. Lassiter & Co.	4	Broward	13.24				0.00	Concrete	10.00		
64-A	H. E. Wolfe Const. Co., Inc.	17	Hillsborough	9.61				9.61	Concrete	98.00		
65	C. C. Moore Const. Co.	5	Hillsborough	.30			.15	0.00	R.B.S.T.	70.00		
68-A	S. P. Snyder & Son	4	Broward	.37			0.00	0.00	R.B.S.T.	35.00		
73-A	Wm. P. McDonald Const. Co.	17	Polk	3.66			1.00	0.00	Mac. Asp.	21.00		
74	Manly Const. Co.	2	Orange	14.34			3.00	0.00	Bit. Conc.	11.00		
500-B	Marianna Lime Products Co.	20	Bay	12.65			0.00	0.00	R.B.S.T.	0.00		
500-C	Marianna Lime Products Co.	20	Bay	12.19			0.00	0.00	R.B.S.T.	0.00		
515	Marianna Lime Products Co.	20	Jackson	4.59			0.00	0.00	R.B.S.T.	0.00		
587-B	Duval Engr. & Contr. Co.	5-A	Suwannee	.34			0.00	0.00	R.B.S.T.	37.00		
698	H. E. Wolfe Const. Co., Inc.	19	Leon	12.45				2.58	Concrete	21.00		
706-A	T. B. Gillespie, Inc.	28	Clay-Putnam	10.83			10.83	2.00	R.B.S.T.	85.00		
713	State Convict Forces	28	Columbia	10.00			7.21	0.00	R.B.S.T.	60.00		
721-B	L. M. Gray	3	Putnam	.25			0.00	0.00	R.B.S.T.	47.00		
750	L. M. Gray	14	Gilchrist	12.26			0.00	0.00	R.B.S.T.	0.00		
756	State Convict Forces	19	Marion	11.89			11.56	8.30	R.B.S.T.	90.00		
758	A. E. Campbell	2	Polk	.10			.10	0.00	R.B.S.T.	75.00		
769	Fred D. Beasley, Inc.	5	Lee	1.89			0.00	0.00	R.B.S.T.	0.00		
787	State Convict Forces	10	Walton	16.27	16.27	12.92			Graded	65.00		
788	W. J. Bryson Paving Co.	10	Walton	17.50	17.50	17.50			Graded	100.00		
798	State Convict Forces	13	Nassau	15.03	10.48	8.25			Graded	55.00		
801	State Convict Forces	48	Bradford-Union	11.78	2.00	2.00			Graded	12.00		
805	State Convict Forces	25	Hendry	9.42	2.00	.20			Graded	5.00		
820	H. D. Spangler & Co.	96	Jefferson	9.45	8.03	3.24			Graded	42.00		
821	H. D. Spangler & Co.	96	Jefferson	5.18	5.18	5.08			Graded	98.00		
825	State Convict Forces	88	Holmes	10.37	.60	.50			Graded	3.00		
831	State Convict Forces	115	Bay	7.16	1.30	1.00			Graded	5.00		
832	State Convict Forces	10	Santa Rosa	16.01	13.00	12.42			Graded	85.00		
833	State Convict Forces	10	Santa Rosa	8.02	7.25	4.35			Graded	30.00		
835	Manly Const. Co.	5	Marion-Citrus	.15			.15	0.00	R.B.S.T.	90.00		
841	State Convict Forces	115	Walton-Citrus	6.44	5.35	3.38			Graded	54.00		
845	State Convict Forces	19	Taylor	8.57	8.57	8.57			Graded	99.00		
846	State Convict Forces	19	Taylor	11.00	9.35	8.97			Graded	70.00		
854	G. W. Byrd	60	Walton	9.81	9.81	9.81		9.20	Sand-Clay	98.00		
868-C	State Convict Forces	5	Levy	12.34	3.00	1.00			Graded	8.00		
870	S. J. Groves & Sons	143	Palm Beach	10.83	3.30	2.80	0.00	0.00	R.B.S.T.	8.00		
876	State Convict Forces	78	Duval-St. Johns	28.90	18.00	17.00			Graded	60.00		
876-A	Standard Dredging Co.	78	Duval-St. Johns	8.00			2.00	0.00	Shell	20.00		
878	State Convict Forces	77	Gilchrist	12.00	5.25	3.25			Graded	20.00		
Total complete May 31st, 1930					3,021.55	2,986.66	1,584.38	2,408.62				
Complete month of May					10.55	13.76	10.97	17.33				
Total complete April 30th, 1930					3,011.00	2,972.90	1,573.41	2,391.29				
TOTAL MILEAGE COMPLETE												
	Concrete	Brick	B.C.	S.A.	B.M.	Asph.B.	R.B.S.T.	S.C.S.T.	S.C.	Asph.	Marl	Total
Complete to April 30, 1930	348.83	17.13	39.73	114.75	109.57	23.70	1,321.52	290.54	204.26	0.00	27.58	2,497.63
Complete month of May	4.96		1.58				10.31		.77	.77		18.39
Complete to May 31, 1930	353.79	17.13	41.31	114.75	109.57	23.70	1,331.83	290.54	205.03	.77	27.58	2,516.02

Dad Might Shoo Him

First Classman: "Well, dearest, what did your father say when he found that I wanted to marry you?"

She: "At first he demurred because he didn't want to lose me, but I explained that he could have me, and that he would have you to boot."

First Classman: "That sounds all right except for the 'to boot' part."—Pointer.

Snappy Comeback

She: "How old do you think I am?"

He: "You don't look it."—Log.

Staving Off a Squawk

Mountaineer (to three-year-old-son): "Ezry, quit pointin' that thar gun at yore little brother. Hit might go off and kill one of them chickens he's playin' with."—Alabama Cajoler.

Why Worry?

Constable: "Let me see your driving license."

Girl: "Well, as a matter of fact, officer, I don't happen to have it on me, but if it will save you any bother I can assure you it's very much like any other jolly old driving license."—Humorist (London).

When History Was Young

Teacher: "Willie, do you mean to say that you can't name all the presidents we have had? When I was your age I could name them all."

Willie: "Yes, but there were only three or four then."—Boston Globe.

Promoting the Postman

"Why do you always address the letter-carrier as professor?"

"It's a sort of honorary title. I'm taking a course by mail."—Louisville Courier-Journal.

OUR SERVICE ON

Contract Bonds

and all other classes of Surety Bonds is unsurpassed.

American Surety Company of New York

Atlanta, Ga., Branch Office, Fourth Floor, Citizens
and Southern Bank Bldg.
H. N. HUTCHINSON, Manager.

PRINTING

Every printing need for the road builder, economically produced. Accuracy, quality and quick action have made for this firm an enviable reputation.

APPLEYARD'S

Foremost Printers of Florida
Tallahassee, Florida

Time to Duck

"Really, Bill, your argument with your wife last night was most amusing."

"Wasn't it, though? And when she threw the axe at me I thought I'd split."—Annapolis Log.

Hero or Scapegoat

"Politics is very uncertain."

"Very," agreed Senator Sorghum. "Even after a man succeeds in being elected, he doesn't know whether he's going to take credit for what happens or whether he's going to get the blame."—Washington Star.

Marathon Philosophy

Life is an endurance test, a clergyman says. Well, it keeps us up in the air a good deal, and it has its own refueling problem.—Albany Knickerbocker Press.

Tut! Tut!

Scientist has invented an earthquake announcer that goes off like an alarm clock. There is a much more general need for an alarm clock that goes off like an earthquake.

No Flowers

Brevity is the soul of modern journalism. A budding journalist was told never to use two words where one would do. He carried out this advice in his report of a fatal accident in the following manner:

"John Jones struck a match to see if there was any gasoline in his tank. There was. Age sixty-five."—Selected by the Christian Evangelist.

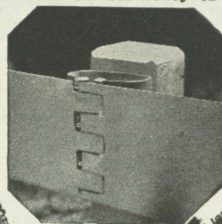
SMOOTH RESILIENT STRONG

With its interlocking spring connection holding the broad smooth rail six inches from the post, and with the resiliency of the rail itself, the Resiliflex Road Guard has the ability to withstand tremendous shocks with the least possibility of damage to motorists, vehicles or the rail itself. Write for literature.

RESILIFLEX
ROAD GUARD

NATIONAL TRAFFIC GUARD CO.

ATLANTA,
GA.



What a Slam!

Passerby: "What, excavating this street again?"

Foreman: "Sure, the contractor is a surgeon, and it seems that three steam shovels are missing."

A Trifle Gaudy, What?

Lord Riddell's suggestion that British advertisers emulate American methods was not, a London news item says, enthusiastically received. It reminds us of the old wheeze about the American who was explaining to a British visitor the construction of an electrical sign his concern was about to place on Broadway, New York. "It will contain," he said, "20,000 red lights, 17,000 blue lights, 10,000 white lights, and a central sunburst of orange and purple." The Englishman was impressed. "Most extraordinary," he said. "But don't you think, old chap, that it will be just a bit conspicuous?"—Spokane Spokesman-Review.

Dobbin and Joan.

Farmer's Wife (to druggist)—"Now, be sure and write plain on them bottles which is for the horse and which is for my husband. I don't want nothin' to happen to that horse before the spring plowin'."—Texas Ranger.

Hard-Boiled Miss

Corporal—"They say that girl you introduced me to is pretty hard, eh?"

Sergeant—"Hard is right. It would take a diamond to make an impression on her."—Army and Navy Journal.

Making It Easy for Dad

"Tell me the truth now, Eric. Who did your home exercise?"

"Father."

"Quite alone?"

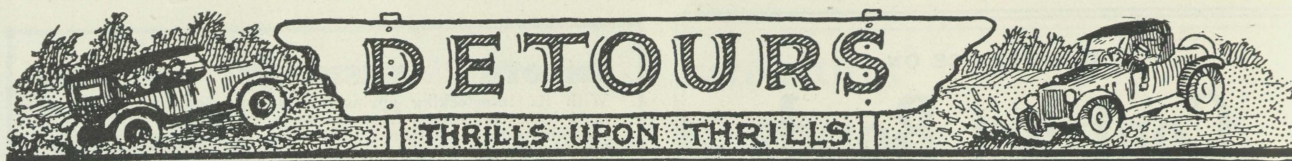
"No, I helped him with it."—Muskete (Vienna).

Skinning Dad

By the time the average college boy of today succeeds in accumulating the horsehide, the pigskin, the coonskin, and finally the sheepskin, poor father has not much hide left, either.—The Pathfinder.

Power of Music

And after hearing the Stein Song a few million times, we sent our first contribution to the Anti-Saloon League.—Judge.



Education by Ear

"Iceland," said teacher in the geography class, "is about as large as Siam."

"Iceland," wrote John at examination time, "is about as large as teacher."

Powerful Motive

It was the young barrister's first case, and he was bubbling over with pride and enthusiasm as he stood in court.

"Now," said he, addressing the defendant, "you say you came to town to look for work? I put it to you, there was another, a stronger motive that brought you all this distance."

"Well," hesitated the defendant, "there was—"

"Ah!" cried the barrister, triumphantly. "And what was it?"

"A locomotive."

Taking No Chances

Mother: "Now, Willie, I want you to get acquainted with the new nurse. Go in and kiss her nicely."

Willie: "Yes, and get my face slapped like papa did?"

High Cost of Living

A P&H Dragline had been shipped into a desolate region in the far West. The operator was busily unloading.

"I suppose," he remarked to a native onlooker, "that even in these parts of the country the bare necessities of life have risen tremendously in price."

"You're right, stranger," replied the native, gloomily, "and it ain't worth drinking when you get it."

The Bore—"I'm rather good at imitations. I could imitate any bird you can name."

She—"Are you? Can you imitate a homing pigeon?"—The Passing Show (London).

She Packs a Wallop

Press dispatches say Amy Johnson, the English sky rider, slapped a young man who tried to kiss her, and he backed away with his nose bleeding. That wasn't a slap; it was a sock.—Macon Telegraph.

Tho Lost to Light, to Memory Dear

Father was sitting in the armchair one evening, when his little son came in and showed him a new pen knife, which he said he had found in the street.

"Are you sure it was lost?" inquired the father.

"Of course, it was lost! I saw the man looking for it!" replied the youngster.—Watchman Examiner (New York).

Champion Breadwinner

Modest Suitor—"I have only \$5,000 a year, sir, but I think I can support your daughter on that."

Father (enthusiastically)—"Support her, my dear boy? Why, you can support her entire family on it."—Royal Arcanum Bulletin.

Who Can Answer This?

If a Hottentot tot taught a Hottentot tot to talk e'er the tot could totter, ought the Hottentot tot be taught to say aught, or naught, or what ought to be taught her?

If to hoot and to toot a Hottentot tot be taught by a Hottentot tutor, should the tutor get hot if the Hottentot tot hoot and toot at the Hottentot tutor?—Outlook.

How It Started

Macbeth's Sentinel (upon spying Birnam Wood moving Dunsinane ward)—"Cheese it, the copse!"—Lord Jeff.

Duly Protested

"What became of that unpaid bill Dunn sent to us?" remarked the bank clerk to his wife.

"Oh, that?" she asked. "I sent it back marked 'insufficient funds.'"—Portland Express.

100 Per Cent. Plus

New Yorker (incredulously)—"And you mean to say that in California you have 365 days of sunshine a year?"

Man from Los Angeles—"Exactly so, sir, and that's a mighty conservative estimate."—Stray Bits.

Hang on to the China

Farmer Wayback (starting home from station)—"Please ma'am, do you wear false teeth?"

Fair Boarder (for the summer)—"Sir!"

Farmer Wayback—"Oh, I don't mean to be curious. Only this road is a leetle rough, and ef your teeth ain't good and fast you'd better put 'em in your pocket."—Our Sunday Visitor.

Child of Nature

Visitor—"And wot was you thinkin' of doing wiv your boy, Mrs. Smith?"

"Well, 'e's that fond of animals 'is father was thinkin' of making a butcher of 'im."—London Tatler.

Balm in Gilead

A blond flapper called at the hospital the day after the accident.

"I want to see the young man who was injured in the auto wreck last night."

"Are you the girl who was with him?" asked the nurse.

"Yes," was the reply, "and I thought it was only right to come and give him the kiss he was trying for."—Boston Transcript.

Sunshine in the Rear

"It is the duty of every one to make at least one person happy during the week," said a Sunday school teacher. "Have you done so, Freddy?"

"Yes," said Freddy promptly.


"That's right. What did you do?"

"I went to see my aunt, and she was happy when I went home."—Christian Register.

Florida Cement

EXCEEDS

State Highway Specifications

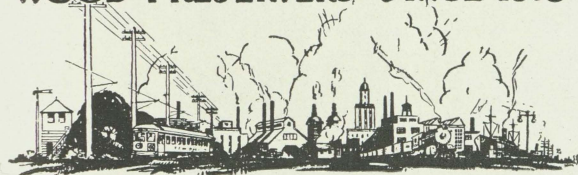
DAILY		20000
CAPACITY		SACKS

"A Florida Product for Florida Construction"

Florida Portland Cement Co.

Tampa, Florida

WOOD PRESERVERS SINCE 1878



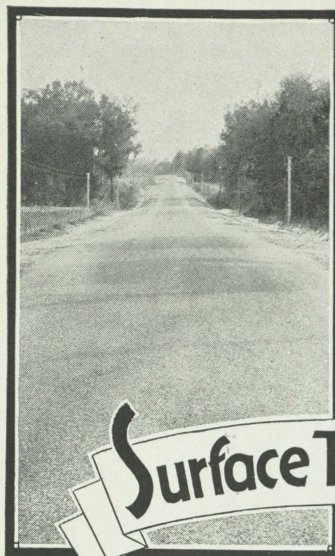
FOR most purposes, lumber is the best material that can be used in construction jobs. Sound timber pressure treated by Creosote or ZMA will last for years and years without decaying. Such treated lumber also defies the attack of termites and fungi. An important factor in timber preservation is the treatment and the organization doing the work. Eppinger & Russell Co. have been wood preservers since 1878—and know how.

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PLANTS—Jacksonville, Fla.
and
Long Island City, N. Y.

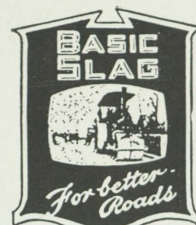


CREOSOTE

WOOD PRESERVERS SINCE 1878
EPPINGER & RUSSELL Co.



Dixie Highway on State Road No. 2 in Marion County: 38 miles Slag Surface Treatment on lime rock base: laid 1924 by Florida State Road Department.



Surface Treatment

"The strength of this type of bituminous macadam depends more on an interlocking of the aggregate particles than on the density of the mixture," says a well known highway engineer.

Non-Skid Florida's state and county engineers know how true that is. Since 1921 they have used "Ensley Basic Slag" in more than 2300 miles of Surface Treatment and they know these roads are *non-skid . . . safe at all speeds . . . easy riding . . . non-glaring . . .* and that year in and year out they carry a surprising volume of heavy traffic.

Better Bond And this is due primarily to that interlocking of the aggregate particles . . . that perfect mechanical bond between asphalt and the coarse, angular, pitted surface of "Ensley Basic Slag" that prevents displacement and adds stability and strength to the pavement.

Greater Strength

15% of the total tonnage of commercial slag is used to build and maintain bituminous highways. In New York the highway department specifies nothing but **SLAG CHIPS** for Surface Treatment work. Will Florida in the face of this evidence . . . and her own experience . . . refuse to include slag in her specifications?

BIRMINGHAM SLAG CO.

Atlanta BIRMINGHAM Montgomery
Thomasville Orlando, Fla.

APPLY MACHINE METHODS TO YOUR BITUMINOUS SURFACING

BALANCE
YOUR
HIGHWAY
PROGRAM



One man grader being
used in Mixed-in-Place
Construction.

MIXED-IN-PLACE CONSTRUCTION WITH **Tarmac**

By applying machine methods to bituminous surfacing, Mixed-in-Place construction with Tarmac cuts down labor, reduces costs and provides a bituminous wearing course that is smooth-riding, skidproof, stable and extremely durable.

The use of this economical, easy-to-build type of surfacing has increased tremendously during

the past few years. If you are not already building Mixed-in-Place surfaces with Tarmac, let us send you our booklet describing this process in detail.

You can still get prompt deliveries of Tarmac, whether in tank cars, barrels or drums, for this and other types of road and street work you wish to complete this year.

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